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ACCESSION NBR: 8610090482 DOC. DATE: 86/10/01 NOTARIZED: NO DOCKET #
FACIL: 50-400 Shearon Harris Nuclear Power Plant, Unit 1, Carolina 05000400
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DENTON, H. R. Office of Nuclear Reactor Regulation, Director (post 851125

SUBJECT: Forwards addl info re emergency operating procedures in response to audit conducted on 860710 & 11. Encl responses satisfy util commitments re training program documented in 860929 ltr & 860814 meeting.

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Carolina Power & Light Company

SERIAL: NLS-86-379

OCT 1 1986

Mr. Harold R. Denton, Director
Office of Nuclear Reactor Regulation
United States Nuclear Regulatory Commission
Washington, DC 20555

SHEARON HARRIS NUCLEAR POWER PLANT
UNIT NO. 1 - DOCKET NO. 50-400
EMERGENCY OPERATING PROCEDURES

Dear Mr. Denton:

Carolina Power & Light Company (CP&L) hereby submits additional information concerning the Shearon Harris Nuclear Power Plant (SHNPP) Emergency Operating Procedures. The attached information (Enclosure 1) is provided in response to NRC concerns identified during an audit of the SHNPP Emergency Operating Procedures conducted on July 10 and 11, 1986. Resolution of these concerns was discussed in a subsequent meeting with the NRC on August 14, 1986. The attached responses satisfy CP&L's commitments concerning the training program documented in CP&L letter dated August 29, 1986 and discussed in the August 14, 1986 meeting.

Several of the NRC's concerns relate to the Procedures Generation Package (PCP). It should be noted, however, that the PCP is not the governing document for licensed operator training at SHNPP. Plant Training Instructions and the SHNPP FSAR provide the training requirements for operators. Emergency Operating Procedure training and evaluation have always been a requirement of these documents. The PCP will be revised to cover the NRC's comments, but it should be recognized that the Training Instructions and the FSAR remain the controlling documents.

If you have any questions on this subject or require additional information, please contact me at (919) 836-6242

Yours very truly,

S. R. Zimmerman
Manager
Nuclear Licensing Section

JHE/mf (5019JDK)

Enclosure

cc: Mr. B. C. Buckley (NRC)
Mr. G. F. Maxwell (NRC-SHNPP)
Dr. J. Nelson Grace (NRC-RII)

411 Fayetteville Street • P. O. Box 1551 • Raleigh, N. C. 27602

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Concern IA

Certain plant-specific information which is called for in the Westinghouse ERG's has not yet been provided in the Harris EOPs. The applicant should perform a systematic review of training to assure that the information that is missing has been included in the training program. Evidence that current operators have all of the required skills and knowledge necessary to implement the EOPs should be documented for NRC review.

Response

A systematic review of the SHNPP EOP network and training to support the EOP network has been completed. Attachment 1 is a WOG/SHNPP Step Matrix identifying where plant specific information was not provided. Attachment 2, "Emergency Procedures and Task Training Matrix" provides documentation as to where training to support the "deleted plant specific information" was conducted. The matrix includes both the Cold License Training Program which has been completed and the Hot License Training Program which will be conducted beginning in mid 1987. The materials to support the Hot License Training Program are presently under development and are scheduled to be completed by mid 1987.

In our letter of August 29, 1986, CP&L committed to complete additional training and/or EOP revision to ensure operator skill in using the EOPs prior to fuel load. Attachment 2 shows that training on plant specific information required to execute Emergency Operating Procedures is adequately provided in Cold License System Training, Continuing Training (1985), and Prelicense Review Training. CP&L considers the current status of EOPs and training to be adequate to ensure operator skill in using the EOPs. The commitments in Attachment 1 to revise the procedures are enhancements to the training that has already been provided, and are not necessary prior to fuel load. These revisions will be completed by December 12, 1986 along with the human factors update as committed to in our August 29, 1986 letter.

Three tasks have been identified for which additional training will be provided. These tasks are considered to be minor items and are listed in Attachment 3. This training will be incorporated in the Licensed Requalification Program and completed by December 31, 1986.

Attachment 2 also shows that training on the deleted plant specific information is covered by the various portions of the Hot License Training Program. Specifically the Hot License EOP Training will include step-by-step discussion of each procedure and bases for each step. Additionally, the EOPs will be fully exercised during the simulator portion of the Hot License Training.

Evidence that current operators have all the required skills and knowledge necessary to implement the EOPs is provided by the following:

1. The NRC licenses each operator. The licensing process includes a written exam, simulator exam, and a plant oral walk-through. Each exam relates in part to the emergency operating procedures. Successful completion of the exam provides adequate evidence that the operator is capable of utilizing the Emergency Operating Procedures.

2. Prior to the NRC exam, CP&L administers an NRC-style written, simulator and plant oral walk-through exam to ensure that the operators are well prepared to operate safely and are ready to be licensed by the NRC.

3. During the simulator training program (approximately 9 weeks for Cold License) the students are evaluated on their performance. The scenarios include normal operations, off-normal operations, and emergency operating procedures. The scenarios have single and multiple failures included. Three examples of simulator scenarios are provided as Attachment 4.

4. Written exams are given throughout the classroom training phases. These exams also include emergency operating procedures.

5. NRC Region II conducted an Operational Readiness Inspection during June, 1986. The training program for Cold License was reviewed and it was determined that the training program was satisfactory with only minor inspector follow-up items.

6. As indicated by the matrix, all EOPs were reviewed by Cold License Candidates in either the Continuing Training Program or Pre-license Review. This training included a step-by-step discussion of the EOP's and the bases for the steps.

7. The training program for Cold License meets or exceeds regulatory requirements.

Concern 1B:

Develop or provide evidence of a training program that systematically assures that information gaps in flowcharts and textual procedures are addressed specifically during future training; the program should include development of standards for the evaluation of task-level performance so that the applicant can identify whether all operators possess the appropriate enabling skills and knowledge to implement the EOPs.

Response

As stated in response in IA above, Attachment 2 is provided showing the task listing for the Hot License Training Program. Also, as stated in IA response above, the program is under development and will be completed prior to conducting Hot License Training for future operators. The program is based on an INPO job task analysis. Attachment 2 will also be used to ensure that items referenced as training required for the usage of the EOPs will be included in the Hot License Program.

Evaluation of the operators to ensure they possess the appropriate skills and knowledge to implement the EOPs, will be similar to the Cold License Training Program which is: 1) written exams during classroom training 2) evaluation during simulator exercises 3) CP&L (NRC style) written, simulator, and plant oral walk-through exams prior to the NRC licensing exams; 4) NRC licensed operator exams which include written, simulator, and plant oral walk-through. Tasks identified by the INPO task analysis are to be incorporated into the simulator scenarios now in development. The operators will be evaluated individually on each task. The simulator exercise guides will reference the tasks and include the criteria for evaluation. Unsatisfactory performance of an evolution requires a repeat of that particular scenario.

Training conducted during the Cold License Training Program Continuing Training and Pre-license Review Training was based on present emergency operating procedures. As changes are made to EOPs they are formally factored into the training program (Refer to Response to Comment 2 for discussion of process).

Enclosure 4 Detailed Comments (Training Program)

Comment 1:

The extensive use of flowcharts in the EOPs as described in the writer's guide reduces the amount of information that procedures can provide to operators. The training program must compensate for this lack of written information, i.e., the operators knowledge of plant procedures must be greater. A training program description must be provided which specifically describes how the training program will maintain the high level of operator knowledge necessary for the use of flowchart EOPs. This program description should address training program for EOPs distinct from training on other plant operating procedures.

Response

Plant Training Instruction 200 (TI-200), "Licensed Operator Requalification Program", maintains operator knowledge of the EOPs through three portions of the program. The "On-The-Job Training" portion requires that the EOPs be reviewed quarterly by each operator. Additionally, the "Formal Classroom Lectures" portion includes a session on Emergency Operating Procedures. Finally, the simulator portion requires sixty-four (64) hours of simulator training each year for each

licensed operator. Exercising the EOPs and ensuring operators can utilize the procedures is a major part of the simulator requalification training program. A review of the EOPs, with emphasis on the plant specific information required is scheduled for the lecture portion of the Requalification Program for 1986.

In order to ensure adequate operator knowledge, TI-200 requires that the following be performed as a part of the requalification training program: 1) Operators will be evaluated during simulator training as to their ability to implement EOPs 2) CP&L will administer annual NRC-style written requalification exams, simulator exams, and plant oral walk-throughs. Additionally, the NRC may examine selected operators yearly in conjunction with the requalification program.

Comment 2:

The PGP should describe a program of retraining to be used in the event of revision of EOPs, including explicit designation of how the need to retrain is to be determined (e.g., assignment of an individual to monitor revisions and retraining).

Response:

Plant Training Instruction 901A, "Dissemenation of Training Related Information" describes the mechanism for review of revisions to plant procedures and EOPs. The instruction gives guidance for review of revisions and provides a tracking mechanism to ensure that the appropriate changes are included into training materials and training is conducted as appropriate. The Harris Training Unit assigns individuals as Subject Matter Experts to review the material. The material is then routed as appropriate and tracked to ensure that the required training is completed. As described in the response to Comment 1 of Enclosure 4, Plant Training Instruction TI-200 "License Operator Requalification Program" requires that the EOPs be reviewed, and exercised on the simulator as a part of the training program on a continuing cycle with emphasis on any changes.

Additionally, On-Site Nuclear Safety (ONS) reviews reports (LERs, SOERS, etc.) concerning operational incidents at SHNPP and other plants. ONS makes recommendations as to inclusion of the information into training. HTU is a member of the ONS review group. The PGP will be reviewed and submitted to the NRC by April 15, 1987.

Comment 3A:

Although the PGP states that a simulator will be used for operator training, the training program description should be expanded to address the following:

> Discuss the method to be used to train the operators in areas where the simulator is not like the control room or does not react like the plant, and in parts of the EOPs that can not be run on the simulator.

Response:

A lesson plan titled "Simulator Differences" is used in simulator training programs. If parts of the EOPs can not be run on the simulator, they are discussed as part of the lesson plan or critiqued at the end of the exercise. ANSI/ANS 3.5 Section 3.1 dated 1981 requires that the simulator respond the same as the plant. The requirement goes into effect 18 months after the plant is in commercial operation. Until that time, if the simulator responds differently (now or once the plant is on line) the differences will be discussed in the "Simulator Differences" lesson plan.

Comment 3B:

Indicate the use of a wide variety of scenarios including mutliple (simultaneous and sequential) failures, to fully exercise the EOPs on the simulator and thus expose the operators to a wide variety of EOP uses.

Response

Attached are three (3) scenarios (including evaluation check sheets) indicating the use of a wide variety of scenarios including multiple (simultaneous and sequential) failures. This is only a sampling of the large number of scenarios that we utilize in the simulator training program. The scenarios are from the Cold License Training Program that was conducted for the presently licensed operators.

Comment 4:

The PGP should include a commitment to train every operator on every EOP prior to EOP implementation in the control room.

Response

The presently licensed operators have been trained on all EOPs in the classroom and have been evaluated on simulator scenarios fully exercising the EOPs. The EOP review to be conducted in the 1986 Requalification Program will include training on changes and the EOP User's Guide. For future licensed operator training programs the operators will also be trained on all EOPs and have simulator training fully implementing the EOP procedures. The PGP will be revised to include comment 4 prior to startup following the first refueling outage as requested.

Comment 5:

The training program should indicate that operators will perform their assigned roles during training and that operators will be trained as teams.

Response:

Plant Training Instructions, TI-201, "Reactor Operator Replacement Training Program", TI-202, "Senior Reactor Operator Replacement Training Program" and TI-200, "License Operator Requalification Program", AI-26, "Simulator Training", emphasize simulator training both in the team concept and in the individual role. Operators are evaluated during simulator exercises as a team as well as individual roles.

Comment 6:

The PGP should indicate that operators will be evaluated after training and that all operators will be evaluated.

Response:

As the part of the training program, operators are evaluated by written exams during classroom training and during the simulator training they are evaluated on the exercises conducted. Unsatisfactory simulator evaluations require a repeat of the scenario. Prior to being licensed by the NRC, CP&L conducts NRC-style written, simulator, and plant oral walk-through exams to ensure that the operators possess the required knowledge to be licensed operators. The NRC provides written, simulator and plant oral walk-through exams to the operator prior to issuing individual licenses. Plant Training Instructions TI-200 "Licensed Operator Requalification Program, TI-201 "Reactor Operator Replacement Training Program", and TI-202 "Senior Reactor Operator Replacement Training Program" require that these evaluations be conducted. The requirement to evaluate operators will be added to the PGP by April 15, 1987.

Attachment 1 - WOG/SHNPP Step Matrix

WOG Step	SHNPP Step	Task	Comments
E-0,RNO 36a E-1,RNO 11a Try to restore offsite power to ac emergency busses. IF offsite power can NOT be restored, THEN load the following equipment on ac emergency busses: [Enter plant specific list].	G1,RNO 47a1) Try to restore offsite power to ac emergency busses. Verify EDGs properly loaded	10 13	Procedure will be revised to indicate how to verify proper loading.
E-3,RNO 11 Try to restore offsite power. IF necessary, THEN manually load the following equipment on the ac emergency busses: [Enter plant specific list].	G2,RNO 19 Verify the following: 1) EDG properly loaded 2) Turbine DC lube oil pumps - RUNNING 3) Turbine seal oil backup pump - RUNNING 4) Instrument air compressors - RUNNING	10 13	Procedure will be revised to indicate how to verify proper loading.
E-1,12a Verify cold leg recirculation capability: 1) Power to low-head SI pumps - AVAILABLE 2) [Enter plant specific list]	G1,66a RHR system - CAPABLE OF COLD LEG RECIRCULATION	4	PATH GUIDE will be revised to include list of required items.
E-1,12b Check auxiliary building radiation - NORMAL [Enter plant specific list]	G1,66b Check auxiliary and waste processing building radiation - NORMAL	14	None.

Attachment 1 - WOG/SHNPP Step Matrix

WOG Step	SHNPP Step	Task	Comments
E-1,RNO 12b Try to identify and isolate leakage: [Enter plant specific means].	G1,RNO 66b Try to identify and isolate leakage.	14 22	None.
E-1,12c Obtain samples: [Enter plant specific list]	G1,37 G1,51 Request Periodic Activity Samples Of All SGs	15 16 24	This step falls at the end of the LOCA guideline under the high level step "Evaluate Plant Status." At this time, this would be directed by the Technical Support Center vice the Control Room.
E-1,12d Evaluate plant equipment: [Enter plant specific list]	None.	24 25	This step falls at the end of the LOCA guideline under the high level step "Evaluate Plant Status." At this time, this would be directed by the Technical Support Center vice the Control Room.
E-1,12e Start additional plant equipment to assist in recovery: [Enter plant specific list]	None.	24 25 26	This step falls at the end of the LOCA guideline under the high level step "Evaluate Plant Status." At this time, this would be directed by the Technical Support Center vice the Control Room. The operator is continually evaluating this need and doing it.
E-1,15b Check SGs radiation - NORMAL [Enter plant specific means]	G1,69b Check SG radiation - NORMAL	15	None.

Attachment 1 - WOG/SHNPP Step Matrix

WOG Step	SHNPP Step	Task	Comments
E-1,17 At ( ) Hours After Event Initiation Prepare For Hot Leg Recirculation: Check control room valve switches in the following position: [Enter plant specific list of normally deenergized valves used for transfer to hot leg recirculation with their correct position during cold leg recirculation] Check circuit breakers so that the following valves are energized: [Enter plant specific list of valves used for transfer to hot leg recirculation]	G1,70 At 18 Hours After Event Initiation, Align SI System For Hot Leg Recirculation Using EPP-011, "TRANSFER TO HOT LEG RECIRCULATION," Step 1.	4	This is not a time critical step. There is no explicit need to prepare for doing EPP-011.
E-3,2 High radiation from any SG blowdown line: [Enter plant specific means]	G1,31 SG blowdown radiation - NORMAL	14 15	None.
E-3,RNO 19 1) Monitor following conditions for indication of leakage from PRZR PORV: [Enter plant specific list].	G2,RNO 28 1) Monitor PRT conditions	17	The procedure will be revised to list which parameters to monitor.

Attachment 1 - WOG/SHNPP Step Matrix

WOG Step	SHNPP Step	Task	Comments
E-3,31 Minimize Secondary System Contamination: [Enter plant specific means]	G2,45 Minimize Secondary System Contamination a. Isolate Main Steam from Auxiliary Steam System by locally shutting 1MS-121. b. Isolate hotwell spillover to CST by locally shutting 1CE-139 1CE-146 c. Establish condensate flow through condensate polishers to maximize removal of secondary radioactivity. d. Place CVPETS in service.	23	The additional detail in this step will also appear in the EPPs where appropriate.
ES-3.1,RNO 5c ES-3.2,RNO 5b ES-3.3,RNO 5b ES-3.3,RNO 14c Manually or locally dump steam from intact SG(s): o Use PORV. --OR-- o [Enter plant specific means].	EPP-017,RNO 5c EPP-018,RNO 5c EPP-019,RNO 5b EPP-019,RNO 14c Dump steam with intact SG PORVs.	9	This step will be revised to address the plant OP on PORV local operations.

Attachment 1 - WOG/SHNPP Step Matrix

WOG Step	SHNPP Step	Task	Comments
ECA-1.1,RNO 3b Manually or locally dump steam from intact SG(s): o Use PORV. --OR-- o [Enter plant specific means].	EPP-012,RNO 3b Dump steam from intact SG(s) using PORV.	9	This step will be revised to address the plant OP on PORV local operations.
ECA-1.1,RNO 17a Manually or locally dump steam at maximum rate from intact SG(s): o Use PORV. --OR-- o [Enter plant specific means].	EPP-012,RNO 17a Dump steam at maximum rate using intact SG PORVs.	9	This step will be revised to address the plant OP on PORV local operations.
ECA-1.1,RNO 18a Manually or locally dump steam from intact SG(s) as necessary to maintain RVLIS full range indication at (10): o Use PORV. --OR-- o [Enter plant specific means].	EPP-012,RNO 18a Dump steam using intact SG PORVs.	9	This step will be revised to address the plant OP on PORV local operations.

Attachment 1 - WOG/SHNPP Step Matrix

WOG Step	SHNPP Step	Task	Comments
ECA-1.1,RNO 21b ECA-1.1,RNO 23b Manually or locally dump steam from intact SG(s): o Use PORV. --OR-- o [Enter plant specific means].	EPP-012,RNO 21b EPP-012,RNO 23b Dump steam using intact SG PORV.	9	This step will be revised to address the plant OP on PORV local operations.
ECA-3.1,RNO 10c ECA-3.2,RNO 5c Manually or locally dump steam from intact SG(s): o Use PORV. --OR-- o [Enter plant specific means].	EPP-020,RNO 11c EPP-021,RNO 5c Dump steam using intact SG PORVs.	9	This step will be revised to address the plant OP on PORV local operations.
ECA-3.3,RNO 25b ECA-3.3,RNO 33c Manually or locally dump steam from intact SG(s): o Use PORV. --OR-- o [Enter plant specific means].	EPP-022,RNO 26b EPP-022,RNO 34c Dump steam using intact SG(s) PORV.	9	This step will be revised to address the plant OP on PORV local operations.

Attachment 1 - WOG/SHNPP Step Matrix

WOG Step	SHNPP Step	Task	Comments
ECA-0.1,8 Establish SG Pressure Control: a. Set each SG PORV controller to maintain existing SG pressure b. Place each SG PORV controller in automatic mode c. Locally return SG PORVs to remote control: [Enter plant specific means]	EPP-002,10 Establish SG Pressure Control: a. Coordinate with local operator and control SG PORVs to maintain existing SG pressure	9	This step will be revised to address the plant OP on PORV local operations.
ES-0.1,RNO 4b Manually place in service: [Enter plant specific means].	EPP-004,None.	2	EPP-004 says to verify charging and letdown in service. This means if they are not in service to place them in service.
ECA-3.3,4e Try To Establish Auxiliary Spray: e. Establish auxiliary spray flow: [Enter plant specific means]	EPP-022,5 Try To Establish Auxiliary Spray: a. Check the following: 1) CSIPs running 2) Auxiliary spray path lined up 3) Auxiliary spray available	18	None.
ECA-1.2,1c Verify Proper Valve Alignment: c. Other paths to outside containment - CLOSED [Enter plant specific list]	EPP-013,1c Verify Proper Valve Alignment: c. Check any valves which failed to align in accordance with SI verification as a possible coolant loss flow path.	20 22	None.

Attachment 1 - WOG/SHNPP Step Matrix

WOG Step	SHNPP Step	Task	Comments
ECA-0.0,RNO 16b Locally dump steam using SG PORVs: [Enter plant specific means]	EPP-001,RNO 15b Locally operate SG PORVs.	9	This step will be revised to address the plant OP on PORV local operations.
ECA-1.1,7c Align spray for recirculation: [Enter plant specific means]	EPP-012,7c Align CNMT spray for recirculation	5	This procedure will be revised to list requirements.
ECA-0.2,RNO 1a Manually align valves to establish cold leg recirculation alignment: [Enter plant specific list].	EPP-003,RNO 1a1) Align valves to establish cold leg recirculation.	4	This procedure will be revised to list valve alignment.
ECA-0.1,RNO 7a ECA-0.2,RNO 6a Establish required AFW valve alignment: [Enter plant specific list]	EPP-002,RNO 9a EPP-003,RNO 6a Establish required AFW valve alignment.	6	None.
ECA-3.1,29 ECA-3.2,23 ECA-3.3,17 Minimize Secondary System Contamination: [Enter plant specific means]	EPP-020,29 EPP-021,22 EPP-022,19 Minimize Secondary System Contamination	14 23	This procedure will be revised to provide more detail. See PATH-2 GUIDE, Step 45.

Attachment 1 - WOG/SHNPP Step Matrix

WOG Step	SHNPP Step	Task	Comments
ECA-1.2,2 Try To Identify And Isolate Break: Sequentially close and open the following valves and monitor for an RCS pressure increase: 1) Low-head SI pump cold leg injection valves 2) [Enter plant specific list]	EPP-013,2 Try To Identify And Isolate Break: a. Dispatch an operator to RAB to investigate. b. Use Radiation Monitoring System to determine possible source of leakage.	14 22	None.
ECA-0.0,26 Verify Service Water System Operation: a. Verify valve alignment - PROPER ALIGNMENT [Enter plant specific list] b. Verify pump - RUNNING	EPP-001,24 Check ESW System Operation: a. Check ESW and ESW booster pumps running.	7	This procedure will be revised to provide more detail and to verify ESW lineup to the EDGs.
ECA-3.1,RNO 7a Try to identify and isolate leakage: [Enter plant specific means].	EPP-020,RNO 8a Perform the following: o Try to identify and isolate leakage. o EAL FLAG: IF RCS leakage exists outside CNMT, THEN reference EAL, entry points U and V.	14 22	None.

Attachment 1 - WOG/SHNPP Step Matrix

WOG Step	SHNPP Step	Task	Comments
ECA-3.1,7 Initiate Evaluation Of Plant Status: a. Check auxiliary building radiation - NORMAL [Enter plant specific means] b. Obtain samples: [Enter plant specific means] c. Evaluate plant equipment: [Enter plant specific list] d. Start additional plant equipment to assist in recovery: [Enter plant specific list]	EPP-020,8 Initiate Evaluation Of Plant Status: a. Check auxiliary building radiation - NORMAL b. Obtain samples of RCS, SGs, and CNMT sump as needed. c. Evaluate plant equipment. d. Start additional plant equipment to assist in recovery.	14 15 16 24 25 26	None.
ECA-0.0,12 Check If SG Tubes Are Not Ruptured: o Condenser air ejector radiation - NORMAL o SG blowdown radiation - NORMAL o [Enter plant specific means]	EPP-001,11 Identify Any Ruptured SG(s) by using Radiation Monitoring System. o Condenser vacuum effluent treatment monitor - NORMAL o SG blowdown radiation monitor - NORMAL o Main steamline radiation monitors - NORMAL	15	None.

Attachment 1 - WOG/SHNPP Step Matrix

WOG Step	SHNPP Step	Task	Comments
E-2,6a Request periodic activity samples of all SGs: [Enter plant specific means]	EPP-014,7a Request periodic activity samples of all SGs.	16	None.
ES-0.2,3 Verify Cold Boron Shutdown Concentration By Sampling: [Enter plant specific means]	EPP-005,3 Verify Cold Boron Shutdown Concentration By Sampling.	16	None.
ES-0.2,17 ES-0.3,8 ES-0.4,7 Maintain Required RCP Seal Injection Flow: [Enter plant specific means]	EPP-005,17 EPP-006,18 EPP-007,17 Maintain Required RCP Seal Injection Flow.	8	No specific instructions are necessary to maintain seal injection.
ECA-3.3,24 Maintain Required RCP Seal Injection Flow: [Enter plant specific means]	EPP-022,21 Check RCP Cooling - NORMAL o RCP CCW system flow o RCP seal injection flow	8	The SHNPP step has the operator check both seal cooling mechanisms, and the RNO column directs the operator to restore them if not normal.

Attachment 1 - WOG/SHNPP Step Matrix

WOG Step	SHNPP Step	Task	Comments
ECA-0.1,20 Try To Restore Offsite Power To All AC Busses: [Enter plant specific means]	EPP-002,21 Try To Restore Offsite Power To All AC Busses. IF necessary, THEN perform the following: a. Verify EDGs have started. b. Verify EDGs have assumed the proper loads. c. Verify turbine DC emergency bearing oil and air side seal oil backup pumps are running. d. Verify adequate EDG capacity and load equipment as necessary to establish stable conditions. e. Determine the cause of the loss of offsite power. If due to a failure of the startup transformer, request assistance from maintenance crews to restore power from either the main or spare startup transformer. If the loss of power is the result of a loss of grid, obtain assistance from the Load Dispatcher.	10 13	None.

Attachment 1 - WOG/SHNPP Step Matrix

WOG Step	SHNPP Step	Task	Comments
ES-1.1,RNO 22 ES-1.2,RNO 4 ECA-2.1,RNO 30 ECA-3.1,RNO 4 Try to restore offsite power. IF necessary, THEN manually load the following equipment on the ac emergency busses: [Enter plant specific list].	EPP-008,RNO 21 EPP-009,RNO 4 EPP-015,RNO 31 EPP-020,RNO 4 Try to restore offsite power. IF necessary, THEN perform the following: a. Verify EDGs have started. b. Verify EDGs have assumed the proper loads. c. Verify turbine DC lube oil and air side seal oil backup pumps are running. d. Verify adequate EDG capacity and load the following equipment on the EDGs: 1) One instrument air compressor 2) Battery chargers 3) PRZ heaters, as needed. e. Determine the cause of the loss of offsite power. If due to a failure of the startup transformer, request assistance from maintenance crews to restore power from either the main or spare startup transformer. If the loss of power is the result of a loss of grid, obtain assistance from the Load Dispatcher.	10 13	None.

Attachment 1 - WOG/SHNPP Step Matrix

WOG Step	SHNPP Step	Task	Comments
ECA-0.0,5a2) Verify ac emergency bus automatically energized: [Enter plant specific means]	EPP-001,5b Verify AC emergency bus automatically energized.	10	This step will be revised to provide more detail.
ES-0.1,RNO 7 Perform the following: a. IF necessary, THEN verify diesel generators have assumed the following loads: [Enter plant specific list]. b. Try to restore offsite power: [Enter plant specific means]. c. IF necessary, THEN manually load the following equipment on the ac emergency busses: [Enter plant specific list].	EPP-004,RNO 8 Perform the following as necessary: a. Verify EDGs have started. b. Verify EDGs have assumed the proper loads. c. Verify turbine DC Emergency bearing oil and air side seal oil backup pumps are running. d. Verify adequate EDG capacity and load the following equipment on the EDGs: 1) One instrument air compressor 2) Battery chargers 3) PRZ heaters, as needed. e. Determine the cause of the loss of offsite power. If due to a failure of the startup transformer, request assistance from maintenance crews to restore power from either the main or spare startup transformer. If the loss of power is the result of a loss of grid, obtain assistance from the Load Dispatcher.	10 13	None.

Attachment 1 - WOG/SHNPP Step Matrix

WOG Step	SHNPP Step	Task	Comments
ECA-0.0,RNO 5a1)-2) 1) Emergency start diesel generator: [Enter plant specific means] 2) Manually energize ac emergency bus. IF bus can NOT be energized, THEN manually trip diesel generator and energize ac emergency bus using any available power supply: [Enter plant specific means]	EPP-001,RNO 5a1)-2) 1) Start EDGs by actuating SI from the MCB IF EDGs will not start, THEN go to Step 5b. 2) Energize AC emergency bus. IF bus can NOT be energized, THEN attempt to locally energize emergency busses at switchgear.	13	None.
ECA-0.1,3b1) Check valve alignment and start CCW pump: 1) Check valve alignment: [Enter plant specific list]	EPP-002,None.		The CCW pump is started in a following step. It will be put here to be consistent with the ERGs and to provide additional guidance on valve alignment.
FRP-S.1,RNO 5a Dispatch operator to locally trip reactor: [Enter plant specific means].	FRP-S.1,RNO 5a Dispatch an operator to locally trip reactor trip breakers or rod drive motor generator sets.	19	None.
FRP-S.1,RNO 5b Dispatch operator to locally trip turbine: [Enter plant specific means].	FRP-S.1,RNO 5b Dispatch an operator to locally trip turbine.	12	None.

Attachment 1 - WOG/SHNPP Step Matrix

WOG Step	SHNPP Step	Task	Comments
FRP-C.1,RNO 2 Start pumps and align valves as necessary. Try to establish any other high pressure injection: [Enter plant specific list]	FRP-C.1,RNO 2 Start pumps Verify SI valve alignment - PROPER EMERGENCY ALIGNMENT Try to establish charging flow to RCS. Go to Step 3. Verify RHR valve alignment - PROPER EMERGENCY ALIGNMENT	4	None.
FRP-C.2,RNO 2a-b a. Start pumps and align valves as necessary. Try to establish any other high pressure injection: [Enter plant specific list] b. Start pumps and align valves as necessary. Try to establish any other high pressure injection: [Enter plant specific list]	FRP-C.2,RNO 2a-b Start pumps Verify SI valve alignment - PROPER EMERGENCY ALIGNMENT Try to establish charging flow to RCS.	4	None.
FRP-C.1,RNO 15 FRP-C.1,RNO 22 FRP-C.2,RNO 15 Continue efforts to establish SI flow. Try to establish any other high pressure injection: [Enter plant specific list].	FRP-C.1,RNO 15 FRP-C.1,RNO 22 FRP-C.2,RNO 15 Continue efforts to establish SI flow. Try to establish charging flow to RCS.	2 4	None.

Attachment 1 - WOG/SHNPP Step Matrix

WOG Step	SHNPP Step	Task	Comments
FRP-C.1,19 Try To Locally Depressurize All Intact SGs To Atmospheric Pressure: o Use PORV --OR-- o [Enter plant specific means]	FRP-C.1,19 Try To Locally Depressurize All Intact SGs To Atmospheric Pressure.	9	This step will be revised to include steam drains upstream of MSIVs, and will address the OP on local operation of SG PORVs.
FRP-C.2,RNO 10b FRP-C.2,RNO 14b Manually or locally dump steam from SGs: o Use PORV. --OR-- o [Enter plant specific means].	FRP-C.2,RNO 10b FRP-C.2,RNO 14b Dump steam using SG PORVs.	9	This step will be revised to reference the plant OP on local SG PORV operations.
FRP-H.1,5c Establish Main FW Flow: [Enter plant specific means]	FRP-H.1,4c Establish Main FW flow.	11	None.
FRP-H.3,8 Establish Blowdown From Affected SG(s): [Enter plant specific means]	FRP-H.3,8 Establish Blowdown From Affected SG(s) to Lower SG Level.	21	This step will be revised to address the plant OP on SG blowdown.

Attachment 1 - WOG/SHNPP Step Matrix

WOG Step	SHNPP Step	Task	Comments
FRP-Z.1,3c Verify spray system valve alignment - PROPER EMERGENCY ALIGNMENT [Enter plant specific list for injection and recirculation phases]	FRP-J.1,3c Verify CNMT spray system valves - PROPER EMERGENCY ALIGNMENT	5	This step will be revised to list requirements.
FRP-I.3,16a Isolate containment: [Enter plant specific list]	FRP-I.3,16a Verify CNMT ventilation isolation	20	This step will be revised to refer to the checklist in order to verify components.

ATTACHMENT #2 EMERGENCY PROCEDURES TASK TRAINING MATRIX

Task Number	Task	Cold License Training	Comments	Hot License Training	Comments
1	Check if SI is Actuated	CLC-1-1-B, pp. 3 & 4 Simulator Control Room Differences	Light panels & Permissive Status Panel reviewed. SI status indicated on panel.	EOP-LP-3.1 Path-1, EPP-004, EPP-008 (In development)	Steps and bases for Path-1. Task required by procedure.
		CLC-2-4-1A, p. 3 Review: Rx Trip Procedure	Discusses kickout to EPP-4 if SI not required.	SIS-LP-3.0 Safety Injection System	COC Systems Training. Indications for SI (Permissive Status Panel).
		CLC-3-4-2B, p. 6. Review: AOP-16, EPP-7, 8, 9 and 10	Discussion on SI verification.	PLR-LP-3.2 Emergency Operating Procedures (To be developed)	RO Procedures Review.
		CLC-3-5-1A, pp. 2-4 SI Demonstration	Demo on SI indications and verification. Also, each trainee walks through each role.	RO Hot License Simulator Scenarios (In development)	Exercises involving use of Path-1.
		CLC-3-5-1B/3-5-2, p. 7 CLC-4-1-1B/4-1-2A, pp. 7-9 CLC-4-3-1B/4-2, pp. 9 & 10 CLC-4-4-2, pp. 6 & 7 CLC-5-1-1, pp. 5 & 6 CLC-5-3-2, p. 5 CLC-5-4-2, pp. 6 & 7 CLC-5-5-1, pp. 10 & 11 CLC-5-1-2, pp. 7 & 8 CLC-6-1-1, pp. 6 & 7 CLC-6-1-2B, p. 5 CLC-6-3-2, pp. 5 & 6 CLC-7-2-1, pp. 7 & 8 CLC-7-2-2, p. 8 CLC-7-4-2, pp. 8 & 9 CLC-7-5-1, pp. 8 & 9 CLC-7-5-2, pp. 8 & 9 CLC-8-1-1, pp. 13 & 14 CLC-8-1-2, pp. 9 & 10 CLC-8-2-2, pp. 5 & 6 CLC-8-3-2, pp. 5 & 6 CLC-9-1-1, p. 7 CLC-9-1-2, pp. 14 & 15 CLC-9-2-2, p. 4 CLC-9-3-2, pp. 8 & 9	CLC Exercises with SI actuation exercises.	SRO Hot License Simulator Scenarios (In development)	

Task Number	Task	Cold License Training	Comments	Hot License Training	Comments
		SS7221H	PLR Exercises with SI actuation		
		SS7222H			
		SS7232H			
		SS7241H			
		SS7242H			
		SS7251H			
		SS7311H			
		SS7312H			
		SS7322H			
		SS7341H			
		SS7342H			
		SS7421H			
		SS7422H			
		SS7431H			
		SS7441H			
		SS7442H			
		SS7451H			
		EOP Review, Section I Prelicense Review	Discussion on use of Paths & EPPs. Walk through of MCB for SI actuation included.		
2	Placing charing and letdown in service	CVCS-LP-1.0 Chemical Volume Control System	CLC Systems Training.	CVCS-LP-3.0 Chemical Volume Control System (In development)	COC Systems Training. Includes flowpath and interlocks.
		CLC-3-4-2B	EPP-008 (EPP-007 in old numbering system) reviewed. Requires operator to manually align charging and letdown.	EOP-LP-3.1 Path-1, EPP-004, 008	Specific steps and bases for EPP-008. Requires manual alignment of charging and letdown.
		CLC-3-5-1A	SI DEMO. Each operator required to implement SI actuation & termination procedures. Requires placing L/D & Charging in service.	RO Hot License Simulator Scenarios (In development)	Exercises involving: 1) EPP-004, Rx Trip Response
		CLC-5-1-1 CLC-5-5-1, p. 12 CLC-6-1-2B CLC-7-2-2 CLC-9-3-2 SS7242H	Simulator Scenarios involving SI termination procedure. Requires placing L/D & Charging in service.	SRO Hot License Simulator Scenarios (In development)	2) EPP-008, SI Termination (Manual alignment of letdown letdown and charging)

Task Number	Task	Cold License Training SS7341H	Comments	Hot License Training	Comments
3	Placing excess letdown in service	CVCS-LP-1.0 Chemical Volume Control System	CLC Systems Training. Flowpath and interlocks included.	CVCS-LP-3.0 Chemical Volume Control System (In development)	COC System Training. Flowpath and interlocks included
		CLC-3-3-1B CLC-5-3-1 CLC-7-4-1	Exercises requiring excess letdown be placed in service.	RO Hot License Simulator Scenarios (In development)	Exercises requiring excess letdown be placed in service.
		SS7322H SS7222H		SRO Hot Licenses Simulator Scenarios (In development)	
4	Alignment of SI for injection and recirculation	SIS-LP-1.0, Sections 2.6.2 and 2.6.3 SI System	CLC Systems Training. Includes flowpath and bases for switchover.	RHR-LP-3.0, Section 2.6.2 & 2.6.3 Residual Heat Removal System	COC Systems Training. Includes flowpaths and bases for switchover
		RHR-LP-1.0, Sections 2.7.2 and 2.3.3 RHR System	CLC Systems Training. Includes flowpaths and bases for switchover.	SIS-LP-3.0, Section 2.7.2 & 2.7.2 Safety Injection System	COC Systems Training. Includes flowpath and bases for switchover.
		PFR-LP-1.0, Sections 2.5.2 and 2.5.3	Phase Four Training reviews flowpaths and bases for switchover.	MCD-LP-2.1, Section 2.3.3 Post Accident Cooling	SRO Mitigating Core Damage Training. Includes bases for switchover.
		MCD-LP-1.1, Section 2.3.3 Post Accident Cooling	Bases for Switchover.	EOP-LP-3.3 EPP-009, 010, 011, 012, 013. (In development)	Specific steps and bases for EPPs-010 and 011. Task required by procedures.
		EOP-009 Continuing Training - 1985 Week 1/Lesson 3	Specific Steps of EPPs 9, 10 & 11. Task required by procedures.		
		RHR System Prelicense Review	Review of RHR System.	RO Hot License Simulator Scenarios (In development)	Exercises involving switchover to Hot Leg Recirculation.
		RHR & SI Systems (RQ86203) Requalification Training - 1986	Flowpaths and interlocks emphasized.		
		CLC-6-1-1 SS7221H	Simulator Scenarios involving switchover to H. L. Recirc. (See Task #1 for all exercise involving SI actuation).	SRO Hot License Simulator Scenarios (In development)	

Task Number	Task	Cold License Training	Comments	Hot License Training	Comments
	Alignment of CNMT Spray for injection and recirculation	CSS-LP-1.0 Containment Spray System	CLC System Training. Flowpaths, actuation signals and interlocks included.	CSS-LP-3.0 Containment Spray System (In development)	COC System Trainng. Includes flowpaths, actuation signals and interlocks.
		Containment Spray System Prelicense Review	Emphasis on operation and response to accidents.	EOP-LP-3.13 FRP-J.1, J.2	Specific steps and bases for FRP-J.1. Task required by procedure.
		Containment Spray (RQ86204) Requalification Training-1986	Emphasis on system mods, operation and interlocks.	RO Hot License Simulator Scenarios (In development)	Exercises requiring Spray Actuation.
		EOP Review Prelicense Review	FRP-J.1 reviewed.		
		EPPs-009, 010, 011 Continuing Training 1985 Week 1/Lesson 3	Review of steps and bases for EPPs 9, 10 & 11 (EPP-10 address alignment for recirculation).	SRO Hot License Simulator Scenarios (In development)	
		CLC-5-3-1 CLC-5-5-1, p. 11 CLC-6-1-1 CLC-8-2-2 CLC-8-3-1	Simulator Scenarios requiring use FRP-J.1 or CV Spray.		
		SS7221H SS7341H SS7342H			
6	Verify AFW Valves properly aligned.	AFS-LP-1.0 Auxiliary FW System	CLC Systems Training. Includes flowpaths, interlocks & pump operations.	AFS-LP-3.0 Auxiliary FW System (In development)	COC Systems Training. Includes flowpaths, interlocks & pump operations.
		ESWS-LP-1.0 Normal & Emergency Service Water	CLC Systems Training. Emergency water source for AFW.	ESW-LP-3.0 Normal and Emergency Service Water (In development)	CLC Systems Training. Emergency source for AFW.
		Auxiliary FW System Prelicense Review	Review of AFW operations.	EOP-L.P-3.1 Path-1, EPP-004, 008 (In development)	Specific steps and Bases for Path-1. Task required by procedure.
		Auxiliary FW System (RQ86205) Requalification Training - 1986	Interlocks and pump operations emphasized.	RO Hot License Simulator Scenarios (In development)	Exercises involving AFW failures.

ATTACHMENT #2 EMERGENCY PROCEDURES TASK TRAINING MATRIX

Task Number	Task	Cold License Training	Comments	Hot License Training	Comments
		CLC-3-5-1A, pp. 2-4	Demo on SI indications & verification. Each trainee walks through each role. (For scenario with SI actuation see Task #1).	SRO Hot License Simulator Scenarios (In development.)	
		CLC-6-3-1 CLC-8-1-1 SS7342H SS7242H	Simulator Exercises involving AFW failures.		
7	Alignment of ESW on Safety Injection	ESWS-LP-1.0 Normal and Emergency Service Water	CLC Systems Training. Alignment for SI included.	ESWS-LP-3.0 Normal and Emergency Service Water (In development)	COC Systems Training. Alignment for SI included.
		Normal and Emergency Service Water Prelicense Review	Review of SW operation.	SEQ-LP-3.0 Safeguards Sequencer	COC Systems Training. List components started in each Load Block.
		Normal and Emergency Service Water (RQ86213) Requalification Training-1986	Flowpaths, pump operations and interlocks emphasized.	EOP-LP-3.1 Path-1, EPP-004, 008 (In development)	Specific steps and bases for Path-1. Task required by by procedure.
		CLC-3-5-1A, pp. 2-4 SI Demonstration	Demo on SI indications and verification. Each trainee walks through each role. (For scenarios with SI actuated see Task #1).	RO Hot License Simulator Scenarios (In development) SRO Hot License Simulator Scenarios (In development)	Exercises with ESW Failures.
		SS7221H SS7341H SS7421H	Simulator Exercises with ESW failures.		
8	Maintaining RCP Seal Injection	CVCS-LP-1.0 Chemical Volume Control System	CLC Systems Training. Injection and return flowpath included.	CVCS-LP-3.0 Chemical Volume Control System (In development)	COC Systems Training. Seal injection and return path included.
		RCP-LP-1.0 Reactor Coolant Pumps	CLC System Training. RCP Seals & Seal Injection discussed.		

Task Number	Task	Cold License Training	Comments	Hot License Training	Comments
		MCD-LP-1.0, pp. 3-6	Seal Degradation and steps	RCS-LP-3.0	COC Systems Training. RCP seal
		Loss of all AC	of EPPs-1, 2 & 3 discussed. Task required by EPP-2.	Reactor Coolant System	construction and operations included.
		EOP Review Pre-license Review	Specific Steps of EPPs 1,2 & 3 discussed. Task required by EPP-2.	AOP-LP-3.11 AOP-018, 030 (To be developed)	Steps for AOP-018, Abnormal RCR Operations. Loss of seal injection discussed.
		CLC-4-2-1A	Review of AOP-018, RCP Abnormal Ops. Loss of Seal Injection discussed.	EOP-LP-3.7 EPP-001, 002, 003 (In development)	Steps and bases for EPPs-001, 002, 003. Task required by EPP-002.
		CLC-6-5-1A	Review of AOP-014, Loss of CCW.		
		CLC-4-2-1B CLC-5-4-1B CLC-7-2-1 SS7113H	Simulator Scenarios involving RCP cooling malfunctions.	MCD-LP-2.9 Loss of All AC	SRO Mitigating Core Damage. Loss of RCP Seal Cooling included.
		SS7142H SS7421H	Simulator Scenarios with Loss Seal Injection.	RO Hot License Simulator Scenarios (In development)	Exercises involving: 1) RCP seal cooling malfunctions 2) Loss of seal injection
		SS7312H	Simulator Scenario with loss of all AC.		3) Loss of all AC
				SRO Hot License Simulator Scenarios (In development)	
9	Locally dumping steam using S/G PORVs	MSSS-LP-1.0, Section 2.2.3 Main Steam Supply System	CLC System Training. (Does not address manual ops. of S/G PORV).	MSSS-LP-3.0 Main Steam System (In development)	COC Systems Training.
		MCD-LP-1.3, Section 2.4 Loss of Feedwater Induced LOCAs	FRP-H.1 reviewed. Copy of Generic WOG Procedure included. Task required by procedure.	EOP-LP-3.10 FRP-C.1, C.2 and C.3 In development)	Specific steps and bases for for FRPs-C.1 and C.2. Task required by procedures.
		EOP-Review (Handout) Pre-license Review	Steps and bases reviewed for FRP-C.1, C.2 & H.1.	EOP-LP-3.11 FRP-H.1, H.2, H.3, H.4 & H.5 (In development)	Specific steps and bases for FRP-H.1. Task required by procedures.
		EOP Update Requalification Training-1986	Manual operation of S/G PORVs to be included in Week 111.	MCD-LP-2.1 Small Break LOCA with NO HHSI	ICC indications and stradegies.

Task Number	Task	Cold License Training CLC-8-1-1	Comments Simulator Scenarios involving use	Hot License Training MCD-LP-2.3	Comments Reviews indications and stradegies
		SS7242H	of FPR-H.1. Task required by by procedure.	Loss of Feedwater Induced LOCAs	for loss of FW.
		SS57211H	Simulator Scenario involving use of FRP-C.2.	RO Hot License Simulator Scenarios (In development)	Exercises involving: 1) Use of FRP-C.1 2) Use of FRP-C.2 3) Use of FRP-H.1 4) Local control of S/G PORVs
				SRO Hot License Simulator Scenarios (In development)	
10	Verify proper operation of the Sequencer	SEQ-LP-1.0 Safeguards Sequencer	CLC System Training.	SEQ-LP-3.0 Safeguards Sequencer	CDC System Training
		Sequences Operations, Prelicense Review	Review of operations.	EOP-LP-3.1 Path-1, EPP-004, 008	Specific steps and bases for Path-1. Task required by procedure.
		EOP Review Prelicense Review	Steps and bases for EPPs-001, 002 & 003. Task required by by procedures.	EOP-LP-3.7 EPP-001, 002, 003	Specific steps and bases for EPPs-001, 002 & 003. Task required by procedures.
				RO Hot License Simulator Scenarios (In development)	Exercises involving 1) Loss of off-site power 2) SI actuation
		CLC-3-5-1A, pp. 2-4	SI Demonstration. Each trainee practices each role.	SRO Hot License Simulator Scenarios (In development)	
		CLC-3-4-1/3-4-2A CLC-5-5-1	Exercises involving: 1) Station Blackout w/EDG functioning 2) Loss of All AC		
11	Establishing Main FW Flow	CFW-LP-1.0 Sections 2.2.6 through 2.2.10, 2.4.6 through 2.4.10, & 2.4.13 Condensate and Feedwater	CLC Systems Training: Includes flowpath, components and I&C.	CFW-LP-3.0 Condensate and Feedwater (In development)	CDC Systems Training Includes, flowpath, components permissives & interlocks.
		FW System Continuing Training - 1985 Week 1/Lesson 9	Flowpath, interlocks & permissives emphasized.	EOP-LP-3.11 FRP-H.1, H.2, H.3, H.4, H.5 (In development)	Specific steps and bases for FRP-H.1. Task required by procedure.

Task Number	Task	Cold License Training	Comments	Hot License Training	Comments
		CND & FW System			
		ERA-01H Prelicense Review	CND & FW Review. Emphasis on valve interlocks and permissives.		
		FW System (RQ86201) Requalification Training-1986	Emphasis on interlocks & permissives.	MCD-LP-2.3 Loss of FW Induced LOCAs	Reviews indications and stradegies for loss of FW.
		EOP Review (Handout) Prelicense Review	Bases & steps of FRP-H.1 reviewed. Task required by procedure.	RO Hot License Simulator Scenarios (In development)	Exercises involving use of FRP-H.1.
		CLC-8-1-1 SS7242H	Simulator Scenarios involving use of FRP-H.1.	SRO Hot License Simulator Scenarios (In development)	
12	Locally tripping turbine	EHC-LP-1.0, Section 2.5.1 Electrohydraulic Control.	CLC Systems Training. Includes Mechanical Overspeed Trip Mechanism and local trip.	EHC-LP-3.0 Electrohydraulic Control (In development)	COC Systems Training. Includes Mechanical Overspeed Trip Mechanism and local trip.
		T&AA-LP-1.20, Section 2.7 Anticipated Transient without Trip.	Bases for FRP-S.1 included.	EOP-LP-3.15 FRP-S.1, S.2 (In development)	Specific steps and bases for FRP-S.1.
		EOP Review (Handout) Prelicense Review	Steps for FRP-S.1 reviewed. Task required by procedure.		
		CLC-2-4-1A, p.4	FRP-S.1 reviewed.	T&AA-LP-2.14 Anticipated Transient without Trip (In development)	ATWS analysis included for failure of turbine to trip.
		CLC-8-1-1	Simulator Scenario in which turbine fails to trip.	RO Hot License Simulator Scenarios (In development)	Exercises involving ATWS with failure of turbine to trip.
				SRO Hot License Simulator Scenarios (In development)	
13	Local Operation of Switchgear BKRs	6.9 KV-LP-1.0 6.9 KV Auxiliary	CLC Systems Training and OJT.	6.9KV-LP-3.0 6.9KV Auxiliary	COC Systems Training.
		480V-LP-1.0, 480V Auxiliary	CLC Systems Training and OJT.	480V-LP-3.0 480V Auxiliary	COC Systems Training.
		120VAC-LP-1.0 208/120 VAC	CLC Systems Training and OJT.		

Task Number	Task	Cold License Training	Comments	Hot License Training	Comments
		120V UPS-LP-1.0 120V Uninterruptible Power	CLC Systems Training and OJT.		
		DCP-LP-1.0 DC Power	CLC Systems Training and OJT.		
		SACP-LP-1.0 Standby AC Power	CLC System Training and OJT. Emergency Diesel Generator.	120V-LP-3.0 208/120VAC (In development)	COC Systems Training.
		SEQ-LP-1.0 Safeguards Sequencer	CLC Systems Training.	UPS-LP-3.0 120V UPS	COC Systems Training.
		AOP-Review Requalification Training-1986	AOP-025, Loss of one 6.9 KV Emergency Bus or one DC Emergency Bus. To be covered in Week III.	DCP-LP-3.0 DC Power (In development)	COC Systems Training.
		Sequencer Operations, Prelicense Review	Includes Load shedding and reenergizing busses.	PLIS-LP-3.0 Plant Light System	COC Systems Training.
		PZR Heater Operations Prelicense Review	Effects of sequencer Operations on PZR Heater.	SEQ-LP-3.0 Safeguards Sequencer	COC Systems Training. Includes Load Shedding and and reenergizing busses.
		MCD-LP-1.10 Loss of All AC	EPPs-1, 2 & 3 Reviewed.	EOP-LP-3.7 EPP-001, 002, 003 (In development)	Specific steps and bases of EPPs-001, 002 & 003. Task required by procedure.
		AOP-004: Control Room Inaccessible Prelicense Review	Review of AOP-004. Walkthrough of ACP & Power Supplies. Requires operation of switchgear	AOP-LP-3.12 AOP-024, 025, 028, 029 (To be developed)	Steps of AOP-25, Loss of One 6.9 KV Emergency Bus or One DC Emergency Bus.
		AOP-004, (RQ86210) Requalification Training - 1986	Review of AOP-004. Requires local operation of switchgear.	RO Hot License Simulator Scenarios (In development)	Exercises involving Loss of all AC.
		EOP-Review Prelicense Review	Includes specific steps of specific steps of EPPs-1, 2 & 3. Task required by procedures.	SRO Hot License Simulator Scenarios (In development)	
		CLC-3-3-2A, pp. 4-8	Simulator Review of EPP-1, 2 & 3.	AOP-LP-3.0 AOP-004	Steps and bases of AOP-004. Requires manual operations of switchgear.

Task Number	Task	Cold License Training	Comments	Hot License Training	Comments
		SS7312H SS7121H SS7442H SS7342H	Simulator Scenario with: 1) Loss of all AC, or 2) Use of AOP-25		
14	Check radiation NORMAL for RAB, SGs, Secondary and CNMT	RMS-HO-1.0 Radiation Monitoring System	CLC Systems Training.	RMS-LP-3.0 Radiation Monitoring System (To be developed)	COC Systems Training. Operations and response to alarms.
		RM-23, 11 & 80/Gen Atomics Rad Monitor Prelicense Review	Reviews operation and response to alarms.	AOP-LP-3.3 AOP-005 (To be developed)	Steps for AOP-005. Response for alarms specified.
		SAMP-LP-1.0, pp. 1-19 Sampling System	CLC System Training. Includes flowpath.	SAMP-LP-3.0 Sampling System (In development)	COC Systems Training. Includes flowpaths.
		CIS-LP-1.0 Containment Isolation System	CLC Systems Training. Lists valves receiving CIAS.	CIS-LP-3.0 Containment Isolation System	COC Systems Training. List valves receiving CIAS.
		LWPS-LP-1.0 Liquid Waste Processing System	CLC Systems Training. RCB Equipment Drain Subsystem included.	PASS-LP-3.0 Post Accident Sampling System (In development)	COC System Training. Operation of PASS.
		Post Accident Sampling System Continuing Training - 1985 Week 2/Lesson 8	Continuing Training Lesson. Operation of PASS.	LWPS-LP-3.0 Liquid Waste Processing System (To be developed)	COC System Training.
				AOP-LP-3.9 APP-016, 023, 031 (To be developed)	Steps for AOP-016, RCS Leakage, including leak identification stradegies.
		CLC-1-1-1B, p. 6	CLC Simulator/SHNPP Differences including RMS.	RO Hot License Simulator Scenarios (To be developed)	Exercises involving use of RMS.
		SS7112H, p. 3	PLR Simulator/SHNPP Differences including RMS.	SRO Hot License Simulator Scenarios (To be developed)	
		CLC-3-4-2B, pp. 2-5	Review AOP-16, RCS Leakage, including Leak identification stradegies.		

Task Number	Task	Cold License Training	Comments	Hot License Training	Comments
		CLC-4-1-1A, pp. 4-6	Reviews SGTR identification and use of RMS.		
		CLC-4-4-2B CLC-7-5-2 CLC-8-1-2 CLC-9-1-1 CLC-9-1-2 CLC-9-2-2 CLC-5-5-2 CLC-6-3-2 CLC-7-2-1 CLC-7-2-2 CLC-8-2-2	Simulator Scenarios including use of RMS.		
		SS7251H SS7232H SS7222H SS7211H SS7321H SS7322H SS7331H SS7332H SS7311H SS7442H SS7421H			
15	Identify a Ruptured S/G	SGTR: Plant Response Continuing Training - 1985 Week 1/Lesson 6	Primary and Secondary Response to SGTR.	EOP-LP-3.1 Path-2, EPP-016 (In development)	Specific steps and bases for for Path-2 and EPP-016. Task required by procedure
		Path-2/EPP-16 Continuing Training - 1985 Week 1/Lesson 7	Specific steps and bases for Path 2 including identification of ruptured SG. Task required by procedure.	AOP-LP-3.3 AOP-005 (In development)	Steps and bases for AOP-005, RMS. Includes reponse to RMS alarms.
		SAMP-LP-1.0 Sampling System	CLC Systems Training.	AOP-LP-3.9 AOP-016, 023, 031 (In development)	Steps and bases for AOP-016, RCS Leakage.

Task Number	Task	Cold License Training	Comments	Hot License Training	Comments
		CLC-3-4-28, pp. 2 & 3	Reviews AOP-016, RCS Leakage, including methods of identification.	SAMP-LP-3.0 Sampling System (In development)	COC Systems Training.
		CLC-4-1-1A	Reviews SGTR identification per Path-1.	RO Hot License Simulator Scenarios (In development)	Exercises with SGTRs.
		CLC-4-4-2 CLC-7-5-2 CLC-8-1-2 CLC-9-1-1 CLC-9-1-2 CLC-9-2-2 SS7251H SS7321H SS7322H SS7331H SS7332H SS7311H SS7442H	Exercises with SGTR.	SRO Hot License Simulator Scenarios (In development)	
16	Requesting samples from Chemistry - SG activity - RCS - Containment H_2 - RCS Boron - Containment Sump	SAMP-LP-1.0 Sampling System	CLC Systems Training. Includes flowpaths.	SAMP-LP-3.0 Sampling System (In development)	COC System Training. Includes flowpaths.
		CIS-LP-1.0 Containment Isolation System	CLC Systems Training. Lists valves receiving CIAS.	PASS-LP-3.0 Post Accident Sampling System (In development)	COC Systems Training.
		LWPS-LP-1.0 Liquid Waste Processing System	CLC Systems Training. Includes RCB Equipment Drains Subsystem.	CIS-LP-3.0 Containment Isolation System	COC System Training. Lists valves receiving CIAS.
		GP-LP-1.5, p. 22	Relates that sampling is done by chemistry.	LWPS-LP-3.0 Liquid Waste Processing System (To be developed)	COC Systems Training. Includes RCB Equipment Drains Subsystem.
		MCD-LP-2.7 Post Accident Primary Radiochemistry	SRO Mitigating Core Damage Training. Describes changes in RCS chemistry and personnel hazards.	MCD-LP-2.7 Post Accident Primary Radiochemistry	SRO Mitigating Core Damage Training. Describes changes in RCS chemistry including personnel hazards.

Task Number	Task	Cold License Training	Comments	Hot License Training	Comments
		Post Accident Sampling System, Continuing Training - 1985 Week 2/Lesson 8	Continuing Training Lesson. Includes operation of PASS.	RT-LP-3.14 S/D Reactivity Considerations	RO Rx Theory Training. Includes SDM Calculations.
				RO Hot License Simulator Scenarios (To be developed)	Simulator Exercises Involving use of Sampling System.
		T&AA-LP-1.7, Section 2.5 Normal Transient Analysis	Includes SDM Calculations.	SRO Hot License Simulator Scenarios (To be developed)	
		CLC-7-2-1, pp. 9 & 10 SS7411H	Exercises with failed fuel. Relates that chemistry does sampling.		
		CLC-4-4-2B CLC-7-5-2 CLC-8-1-2 CLC-9-1-1 CLC-9-1-2 CLC-9-2-2 CLC-5-5-2 CLC-6-3-2 CLC-7-2-1 CLC-7-2-2 CLC-8-2-2 SS7251H SS7232H SS7222H SS7211H SS7321H SS7322H SS7311H SS7442H SS7421H	Exercises involving uses of sampling systems.		
17	Monitoring Conditions Indicative of PZR PORV Leakage	PZR-LP-1.0 Pressurizer	CLC Systems Training. I&C included.	PZR-LP-3.0 Pressurizer	COC System Training. I&C included.
		RCS-LP-1.0 Reactor Coolant System	CLC System Training. PZR and PRT I&C included.	RCS-LP-3.0 Reactor Coolant System	COC System Training. PZR and PRT I&C included.

Task Number	Task	Cold License Training	Comments	Hot License Training	Comments
		FF-LP-1.1, Sect 2.12.2 Fluid Flow: Fluid Mechanics in Pumps and Pipes	Isenthalpic Process discussed with examples using PZR PORVs leakage.	FF-LP-3.2, Section 2.5.2 Fluid Flow: Fluid Mechanics in Pump and Pipes	Isenthalpic Process discussed with example using PZR PORVs.
		CLC-3-3-1A	Review of AOP-019, Malfunction of of RCS Pressure Control. Includes indication of PORV leakage.	AOP-LP-3.10 AOP-017, 019 (To be developed)	Steps and bases for AOP-019, Malfunction of RCS Pressure Control. Includes indications of PORV Leakage.
		CLC-3-4-2B	Review of AOP-016, RCS Leakage.	AOP-LP-3.9 AOP-016, 023, 031	Steps and bases for AOP-016, RCS Leakage.
		CLC-4-5-2 CLC-5-2-2 CLC-7-2-2 CLC-8-1-2 SS7332H	Exercises involving leaking or open PZR PORV.	RO Hot License Simulator Scenarios (In development) SRO Hot License Simulator Scenarios (In development)	Exercises involving leaking or open PZR PORV.
18	Establish Auxiliary Spray	CVCS-LP-1.0 Chemical Volume Control System	CLC Systems Training. Flowpaths included.	CVCS-LP-3.0 Chemical Volume Control System (In development)	COC Systems Training. Flowpaths included.
		PZR-LP-1.0 Pressurizer	CLC Systems Training. Auxiliary Spray included.	PZR-LP-3.0 Pressurizer	COC Systems Training. Aux Spray included.
		EPP-022 Continuing Training - 1985 Week 2/Lesson 5	Specific steps and bases for EPP-022. Task required by procedure.	EOP-LP-3.6 EPP-005, 006, 007 (In development)	Specific steps and bases for EPPs-22. Task required by procedure.
		EPPs-005,006 & 007 Continuing Training - 1985 Week 2/Lesson 6	Specific steps and bases for EPPs-005, 006 & 007. Natural circulation cooldown requires auxiliary spray.	EOP-LP-3.8 EPP-005, 006, 007 (In development)	Specific steps and bases for EPPs-005, 006 & 007. N.C. cooldown requires auxiliary spray.
		GP-LP-1.7 Normal Plant Cooldown	Steps include use of auxiliary spray.	GP-LP-3.7 Normal Plant Cooldown	Steps include use of auxiliary spray.

Task Number	Task	Cold License Training	Comments	Hot License Training	Comments
		CLC-2-3 CLC-9-2-1 SS7121H SS7151H	Exercises involving use of auxiliary spray.		
		CLC-9-1-2 SS7311H	Exercises requiring use of EPP-22.		
19	Local tripping of Rx Trip Bkrs and MG sets	RODCS-LP-1.0, Section 2.4.6 Rod Control System	CLC Systems Training.	RODCS-LP-3.0 Rod Control System (in development)	COC Systems Training.
		EOP-Review (Handout) Pre-license Review	Steps and bases for FRP-S.1. Task required by procedure	EOP-LP-3.15 FRP-S.1, S.2	Specific steps and bases for FRP-S.1. Task required by procedure.
		CLC-2-4-1A	Review of FRP-S.1.	RO Hot License Simulator Scenarios (in development)	Exercises using FRP-S.1.
		CLC-2-5-2B CLC-4-2-1B CLC-4-3-1B/4-3-2 CLC-6-2 CLC-8-1-1	Exercises involving use of FRP-S.1.	SRO Hot License Simulator Scenarios (in development)	
20	Verification of CNMT Isolation	CVS-LP-1.0 Containment Ventilation System	CLC Systems Training. Response to CIAS included.	CVS-LP-3.0 Containment Ventilation System	COC Systems Training. Response to CIAS included.
		CAPES-LP-1.0 Containment Atmosphere Purge and Exhaust	CLC Systems Training. Response to CIAS included.	CIS-LP-3.0	COC Systems Training. List of valves receiving CIAS included.
		CIS-LP-1.0 Containment Isolation System	CLC Systems Training. List of valves receiving CIAS included.	EOP-LP-3.12 FRP-1.1, 1.2, 1.3	Specific steps and bases of FRP-1.3. Task required by procedure.
		Containment Ventilation System Prelicense Review	Includes operations and Plant Mods.	RO Hot License Simulator Scenarios (in development)	Exercises with SI actuation. (See Task #1).
		EOP-Review Prelicense Review	Specific steps for FRP-1.3 discussed. Task required by procedure.	SRO Hot License Simulator Scenarios (in development)	

Task Number	Task	Cold License Training	Comments	Hot License Training	Comments
		CLC-3-5-1A	SI Demonstration. Each trainee walks through each role for SI actuation. (See Task #1 for exercises with SI actuation).		
21	Establishing Blowdown from S/Gs.	SGBS-LP-1.0 S/G Blowdown System	CLC Systems Training.	SGBS-LP-3.0 S/G Blowdown System	COC Systems Training.
		SG-LP-1.0 Steam Generator	CLC Systems Training.	SG-LP-3.0 Steam Generators	COC Systems Training.
		EPPs-017, 018, 019 Continuing Training-1985 Week 1/Lesson 8	Steps and bases of EPP-018 reviewed. BD used to depressurize ruptured S/G.	EOP-LP-3.11 FRP-H.1, H.2, H.3, H.4 & H.5	Specific steps and bases for FRP-H.5. Task required by procedure.
		EOP-Review (Handout) Prelicense Review	Steps for FRP-H.5, Reponse to S/G High Level. Task required by procedure.		
22	Try to identify & isolate leak	CLC-3-4-2B, pp. 2 & 3	Review of AOP-16, RCS Leakage, and discussion of methods of identifying leakage.	EOP-LP-3.5 EPPs-20 & 21 (In development)	Specific steps and bases for for EPP-20. Task required by procedure.
		RMS-HO-1.0	CLC Systems Training.	RMS-LP-3.0 Radiation Monitoring System (In development)	COC Systems Training. RMS used in leak identification.
		RM-23, 11 & 80/Gen Atomic Rad Monitors Prelicense Review	Operation of RMS reviewed. Walk through included.	AOP-LP-3.9 AOPs-016, 023, 031 (To be developed)	Steps for AOP-16, RCS Leakage. Leak identification strategies included.
		EPP-20 & 21 Continuing Training-1985 Week 2/Lesson 4	Specific Steps of EPPs-20. Task required by procedure.	AOP-LP-3.3 AOP-005 (To be developed)	Steps for AOP-005, RMS, Response for alarms specified.
		CLC-7-5-2 CLC-8-1-2 CLC-9-2-2 SS7322H SS7331H	Simulator Scenarios in which EPP-20 implemented.	RO Hot License Simulator Scenarios (In development) SRO Hot License Simulator Scenarios (In development)	Exercises requiring use of EPP-20.

Task Number	Task	Cold License Training	Comments	Hot License Training	Comments
	Minimize secondary contamination	SGTR: Radiological Consequences Continuing Training - 1985 Week 1/Lesson 3	Includes mechanisms of radionuclide transport and actions to minimize.	EOP-LP-3.2 Path-2/EPP-16 (In development)	Specific steps and bases for Path-2. Task required by procedure.
		RM-23, 11 & 80/Gen Atomics Rad Monitor Prelicense Review		AOP-LP-3.3 AOP-005	Steps reviewed for AOP-005. AOP-005 includes actions that minimize contamination
		MSSS-LP-1.0 Main Steam System	CLC Systems Training. Secondary Systems effected by contamination. Knowledge of flowpaths aids operator in taking action to accomplish task.	MSSS-LP-3.0 Main Steam System	CLC Systems Training. Secondary Systems potentially effected by contamination. Knowledge of flowpaths aids operator in taking action to accomplish task.
		SDS-LP-1.0 Steam Dump System		SDS-LP-3.0 Steam Dump System	
		CFW-LP-1.0 CND and FW Systems MSR-LP-1.0 MSR & FW HTRS		CFW-LP-3.0 CND and FW Systems MSR-LP-3.0 MSR and FW HTRS	
		MCES-LP-1.0 Main Condenser Evacuation System		MCES-LP-3.0 Main Condenser Evacuation System	
		MTSS-LP-1.0 Main Turbine Sealing Steam and Exhaust		MTSS-LP-3.0 Main Turbine Sealing Steam and Exhaust	
		CPDS-LP-1.0 Condensate Polishing & Demineralizing System		CPDS-LP-3.0 Condensate Polishing & Demineralizing System	
		Path-2/EPP-016 Continuing Training - 1985 Week 1/Lesson 7	Specific steps and bases for Path-2. Task required by procedure.	RO Hot License Simulator Scenarios (In development)	Exercises with SGTRs.
		EOP Update Requalification Training-1986	Actions added to procedures discussed. Included in Week III.	SRO Hot License Simulator Scenarios (In development)	

Task Number	Task	Cold License Training	Comments	Hot License Training	Comments
		CLC-4-4-2	Exercises involving SGTRs.	RNO Qual Cards	Steps to:
		CLC-7-5-2 CLC-8-1-2 CLC-9-1-1 CLC-9-1-2 CLC-9-2-2 SS7251H	CLC-9-1-1 involves a SGTR with the associated MSIV stuck open. Path-2 specifies actions that minimizes secondary contamination for that situation. Some of the actions are applicable for SGTRs in general.	1) QC 05.84H Performance III.15 2) QC 08.80H Performance III.5	1) Isolate Main Steam to Auxiliary Steam 2) Place CND Polishing System in service
		SS7321H SS7322H SS7331H SS7332H SS7311H SS7442H		AO Qual Card	Steps to: 1) Isolate Main Steam to Auxiliary Steam 2) Isolate Hotwell spillover to CST 3) Place CVPETS in service
24	Evaluate Plant Status	GP-LP-1.0, Sections 2.24 & 2.25 Conduct of Operations	Procedures Training on Conduct of Operations. Continual evaluation of plant status and use of redundant instrumentation is emphasized.	PP-LP-3.0 OMM-001, 009	RO Procedures Training. OMM-1, Conduct of Operations, discusses Continual evaluation of plant status and emphasizes use of redundant instrument.
		CLC-1-1-2, pp. 2-5 Cover sheet for simulator Exercise Guides	Conduct of Operations Reviewed. Evaluates shift Conduct of Operation for each exercise.	ADOP-LP-2.0, SRO Duties and Responsibilities	SRO Advanced Operating Procedures Training. Conduct of Operations reviewed.
		MCD-LP-1.1 Post Accident Cooling	Mitigating Core Damage Course describes: 1) plant response to accidents 2) strategies for assessing damage 3) strategies for recovery 4) equipment required to implement recovery strategies	MCD-LP-2.1 Post Accident Cooling	Mitigating Core Damage Course describes: 1) plant response to accidents 2) strategies for assessing damage 3) strategies for recovery 4) equipment required to implement recovery strategies
		MCD-LP-1.2 Small Bkr LOCA with no HHSI		MCD-LP-2.2 Small Bkr LOCA with no HHSI	
		MCD-LP-1.3 Loss of FW Induced LOCAs		MCD-LP-2.3 Loss of FW Induced LOCA	
		MCD-LP-1.4 Vital Process Instrumentation		MCD-LP-2.4 Vital Process Instrumentation	

Task Number	Task	Cold License Training	Comments	Hot License Training	Comments
		MCD-LP-1.5 Accident Response of Incore Instrumentation MCD-LP-1.6 Accident Response of Excore Instrumentation MCD-LP-1.7 Post Accident Primary Radiochemistry MCD-LP-1.8 Radiological Aspects of Core Damage MCD-LP-1.9 Loss of All AC Power MCD-LP-1.10 Class 9 Events MCD-LP-1.11 Instrument Qualification and Accident Response EOP-020 & 021 Continuing Training - 1985 Week 2/Lesson 4	Steps and bases for EPP-20. Task required by procedure.	MCD-LP-2.5 Accident Response of Incore Instrumentation MCD-LP-2.6 Accident Response of Excore Instrumentation MCD-LP-2.7 Post Accident Primary Radiochemistry MCD-LP-2.8 Radiological Aspects of Core Damage MCD-LP-2.9 Loss of All AC Power EOP-LP-3.5 EPPs-020, 021	Specific steps and bases for EPP-020. Task required by procedure.
		CLC-7-5-2 CLC-8-1-2 CLC-9-2-2 SS7322H SS7331H	Simulator Scenarios requiring use of EPP-20. (Note: Almost all simulator exercises require use of task).	RO Hot License Simulator Scenarios (In development) SRO Hot License Simulator Scenarios (In development)	Exercises involving EPP-020. (Note: Almost all simulator exercises require use of task.)
25	Evaluate Plant Equipment	CLC Systems Training Continuing Training - 1985 Prelicense Review Training Requalification Training-1986	Operations of all systems covered in CLC Training. Reviews and updates covered in Continuing Training, Prelicense Review and Requalification Training.	COC Systems Training	Operations of all systems, including the Operating Procedures, covered in COC Training.

Task Number	Task	Cold License Training	Comments	Hot License Training	Comments
		MCD-LP-1.1 Post Accident Cooling	Mitigating Core Damage Course describes: 1) plant response to accidents 2) strategies for assessing damage 3) strategies for recovery 4) equipment required to implement recovery strategies	MCD-LP-2.1 Post Accident Cooling	Mitigating Core Damage Course describes: 1) plant response to accidents 2) strategies for assessing damage 3) strategies for recovery 4) equipment required to implement recovery strategies
		MCD-LP-1.2 Small Bkr LOCA with no HHSI		MCD-LP-2.2 Small Bkr LOCA with no HHSI	
		MCD-LP-1.3 Loss of FW Induced LOCAs		MCD-LP-2.3 Loss of FW Induced LOCA	
		MCD-LP-1.4 Vital Process Instrumentation		MCD-LP-2.4 Vital Process Instrumentation	
		MCD-LP-1.5 Accident Response of Incore Instrumentation		MCD-LP-2.5 Accident Response of Incore Instrumentation	
		MCD-LP-1.6 Accident Response of Excore Instrumentation		MCD-LP-2.6 Accident Response of Excore Instrumentation	
		MCD-LP-1.7 Post Accident Primary Radiochemistry		MCD-LP-2.7 Post Accident Primary Radiochemistry	
		MCD-LP-1.8 Radiological Aspects of Core Damage		MCD-LP-2.8 Radiological Aspects of Core Damage	
		MCD-LP-1.9 Loss of All AC Power		MCD-LP-2.9 Loss of All AC Power	
		MCD-LP-1.10 Class 9 Events			
		MCD-LP-1.11 Instrument Qualification and Accident Response			

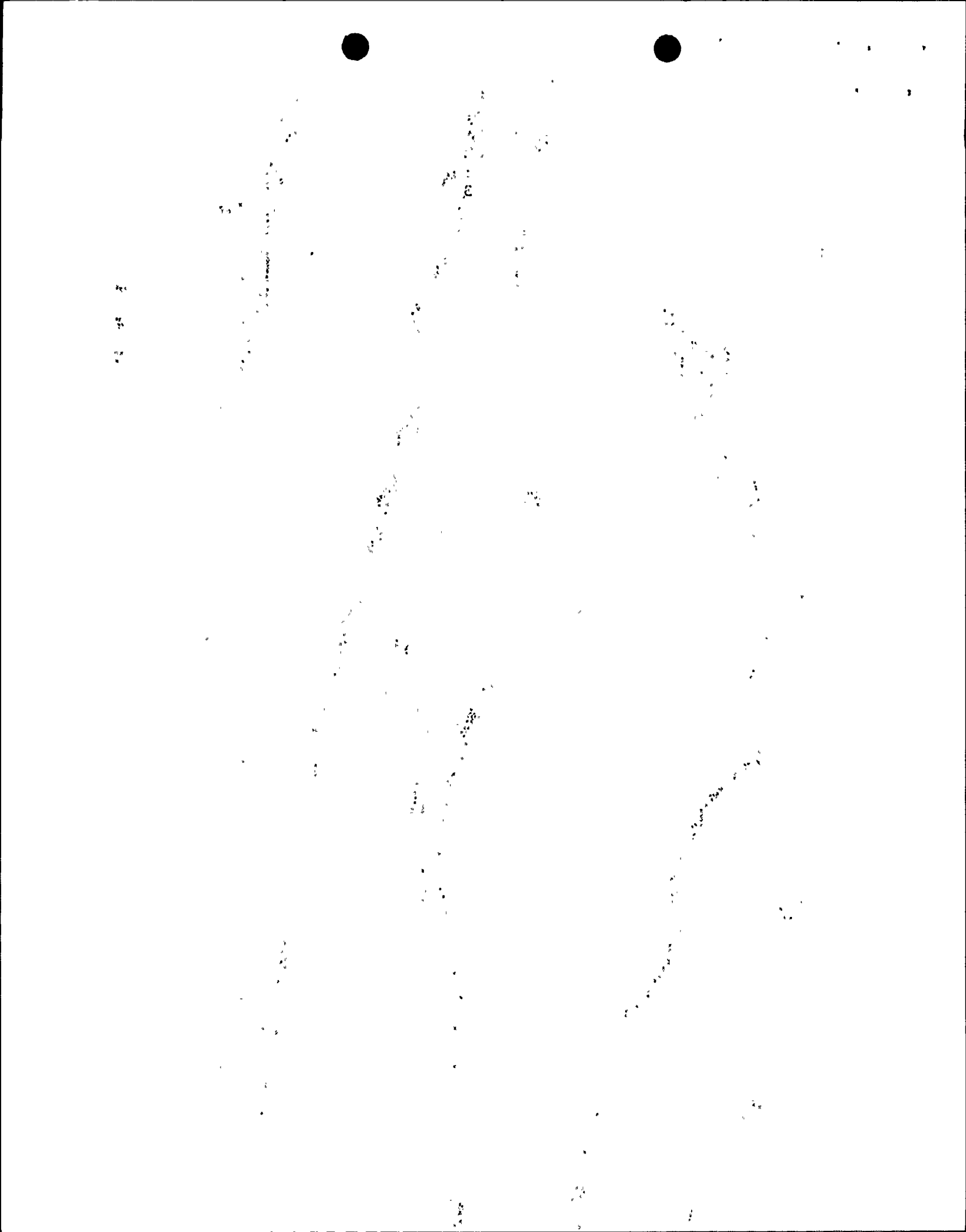
Task Number	Task	Cold License Training	Comments	Hot License Training	Comments
		EPP-020 & 021	Steps and bases of EPP-20.		
		Continuing Training - 1985 Week 2/Lesson 4	Task required by procedure.		
		SS7114H SS7121H	Simulator Scenarios involving multiple failures of RHR, CCW, etc. Operators are required to evaluate equipment status and initiate recovery with available systems.	EOP-LP-3.5 EPP-020, 021 (In development)	Specific steps and bases for EPP-20. Task required by procedure.
		CLC-7-5-2 CLC-8-1-2 CLC-9-2-2	Simulator Scenarios in which EPP-20 is required. (Note: Almost all simulator exercises require task.)	SRO Hot License Simulator Scenarios (In development)	
26	Start additional plant equipment to assist in recovery	CLC Systems Training	Each accident requires operation of a unique set of systems. Any system that might be required is taught in systems training.	COC Systems Training	Each accident requires a unique set of systems be put into operation. Any system that might be required is taught in COC Systems Training including associated OPs and AOPs.
		MCD-LP-1.1 Post Accident Cooling	Mitigating Core Damage Course describes: 1) plant response to accidents 2) strategies for assessing damage 3) strategies for recovery 4) equipment required to implement recovery strategies	MCD-LP-2.1 Post Accident Cooling	Mitigating Core Damage Course describes: 1) plant response to accidents 2) strategies for assessing damage 3) strategies for recovery 4) equipment required to implement recovery strategies
		MCD-LP-1.2 Small Bkr LOCA with no HHSI		MCD-LP-2.2 Small Bkr LOCA with no HHSI	
		MCD-LP-1.3 Loss of FW Induced LOCAs		MCD-LP-2.3 Loss of FW Induced LOCA	
		MCD-LP-1.4 Vital Process Instrumentation		MCD-LP-2.4 Vital Process Instrumentation	
		MCD-LP-1.5 Accident Response of Incore Instrumentation		MCD-LP-2.5 Accident Response of Incore Instrumentation	

ATTACHMENT #2 EMERGENCY PROCEDURES TASK TRAINING MATRIX

Task Number	Task	Cold License Training	Comments	Hot License Training	Comments
		MCD-LP-1.6 Accident Response of Excore Instrumentation		MCD-LP-2.6 Accident Response of Excore Instrumentation	
		MCD-LP-1.7 Post Accident Primary Radiochemistry		MCD-LP-2.7 Post Accident Primary Radiochemistry	
		MCD-LP-1.8 Radiological Aspects of Core Damage		MCD-LP-2.8 Radiological Aspects of Core Damage	
		MCD-LP-1.9 Loss of All AC Power		MCD-LP-2.9 Loss of All AC Power	
		MCD-LP-1.10 Class 9 Events			
		MCD-LP-1.11 Instrument Qualification and Accident Response			
		EPP-20 Continuing Training Week 2/Lesson 4	Specific steps of EPP-20. Tasks required by procedure.		
		SS7114H SS7121H	Simulator Scenarios involving multiple failures of RHR, CCW, etc. Operators are required to evaluate plant status and initiate recovery with <u>available</u> systems.	EOP-LP-3.5 EPP-20 & 21 (In development)	Specific steps and bases for EPP-20. Tasks required for procedure.
		CLC-7-52	Simulator scenarios in which EPP-20 implemented. (Most simulator scenarios require task).	RO Hot License Simulator Scenarios (In development)	Exercises requiring use of EPP-20. (Most simulator scenarios require task).
		CLC-8-1-2 CLC-9-2-2 SS7322H SS7331H		SRO Hot License Simulator Scenarios (In development)	

ATTACHMENT 3
ADDITIONAL COLD LICENSE TRAINING

Task	Comments
Locally Dumping steam using S/G PORVs	Manual operation of S/G PORVs will be described and procedure reviewed. A walkthough of operations will be conducted. Local operations on the S/G PORV have been incorporated into the applicable nonlicense Qualification Card.
Minimize Secondary Contamination	Actions that are being incorporated in the revised EOPs will be described. Manual actions that require local operations have been incorporated into the applicable non-licensed Qualification Cards.
Local Operation of Switchgear BKRs	Electrical plant response to SI and LOSP will be discussed including requirement to monitor conditions and manipulate switchgear

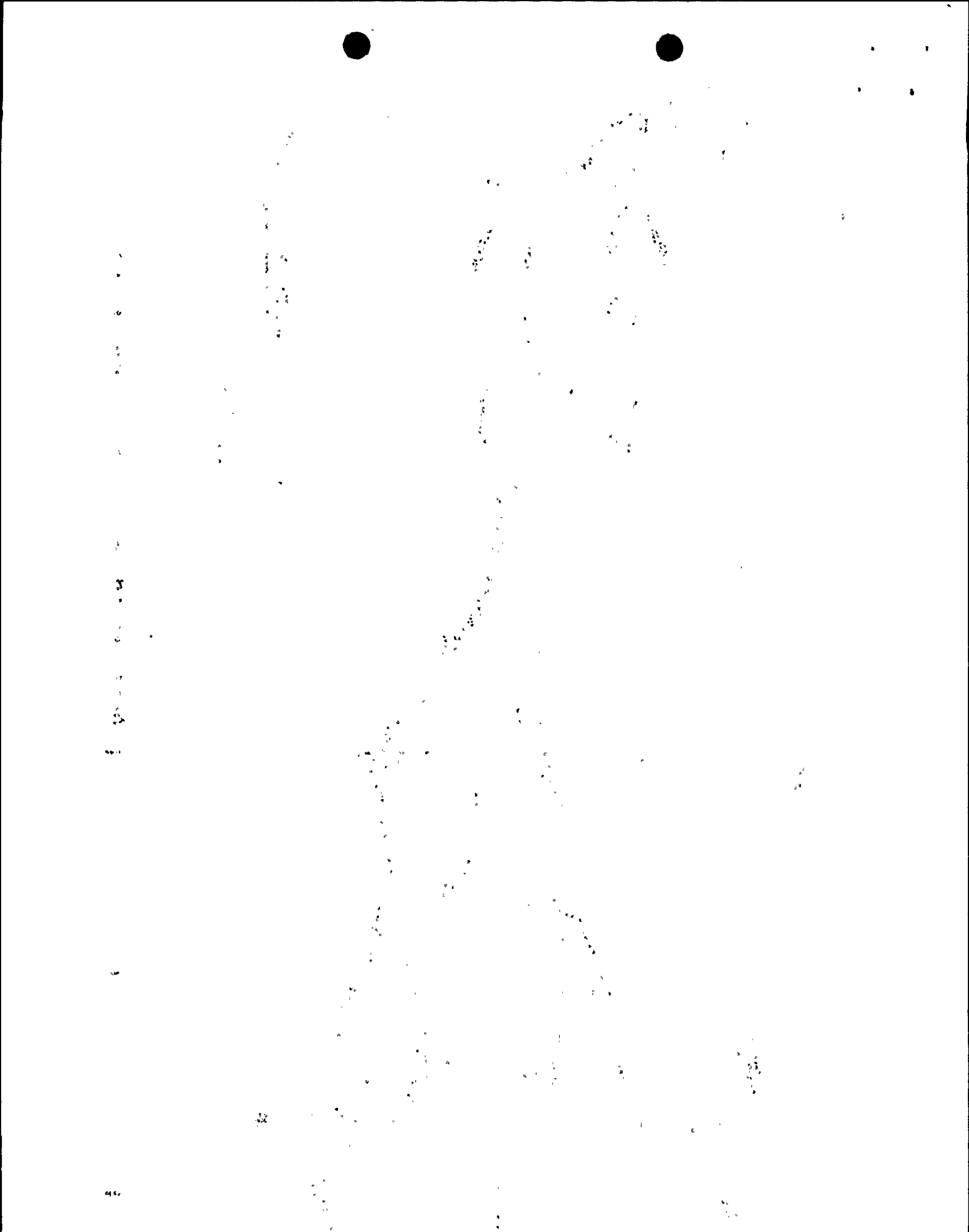


ATTACHMENT 4
SIMULATOR SCENARIOS

1. CLCL-7-2-2: Load Rejection/ATWS/RCS Depressurization

2. CLCL-7-5-2: S/G Tube Leak/Rupture/ATWS/S/G PORV Failed Open

3. SS7421H: Inadvertent SI/SW Malfunctions/LOCA without CSIPs



SHNPP SIMULATOR EXERCISE GUIDE

EXERCISE: Load Rejection/ATWS/RCS Depressurization FILE NO. CLC-7-2-2 TIME: 4 hours

OBJECTIVES: Upon completion of this exercise, the student will be able to:

1. Perform a power escalation without violating any tech spec or administrative limits.
2. Take appropriate actions on load rejection without steam dumps to stabilize plant in a safe condition.
3. Identify an ATWS event and take actions to prevent core damage and radioactive releases to the environment.
4. Identify a failed open PZR PORV and take corrective actions to stop RCS depressurization.

RELATED LER's, UER's, POER's, etc:
Salem ATWS SEP 14, 83 (2/83) - Breakers failed open (UV part of mechanical latch)

INITIAL CONDITIONS: IC-7 (BOL)	**Present**		**Previous**
Present power 8 hours	51%	PWR	100%
	571	T_{avg}	586
	875	Boron	839
	174 D	Rod Hgt	208 D

INSTRUCTOR GUIDE:
Update PRODAC. Increase R_X power to 100%. FI-122A failure (low) causes actual charging flow to increase. CSIP failure requires placing "C" pump in service. External load breakers opening with no auto dumps should cause reactor first out (Lo-Lo S/G Lvl). ATWS causes RCS pressure to increase. When spray valves open, fail PCV-444B open. (Note: Do not trip R_X remotely until PORV opened). RCS will become saturated and remain saturated until block valve closed. Allow block valve to close after I&C and maintenance investigates. (Upon completion of exercise, reset for shift turnover per CLC-7-2-1).

SHIFT TURNOVER INFORMATION:
Decreased power to 50% for feed pump maintenance. Feed pump tested and running.

MALFUNCTIONS		OVERRIDES		REMOTE OPS
T-0	All Auto Reactor Trip Functions (Disabled)	T-0	PZR PORV Iso Vlv 8000C (Open)	
T-0	Auto Steam Dump Controller (Inhibited)	T-50	FI-122 A Charging Header Flow (Low)	
T-0	Manual Reactor Trips (Disabled)	T-90	Charging Pump "A" (Stop)	
T-120	External Load Breakers 52-8 & 52-9 (Open)	T-VAR	PCV-444B Pressurizer Relief Valve (Open-- Fail when sprays open)	

SUPPLEMENTAL INFORMATION:
Charging Flow - Transmitter failure
Charging Pump "A" - Motor bearing seized
External Load Breakers - Phase differential relay
PCV-444B - Controller failure/valve jammed on backseat
Block Valve - Breaker tripped (overcurrent relay failed)
ATWS - Trip breaker binding/improper lubrication
EXPECTED RESPONSE: AS PER SERIAL RELATED CHECKOFF

SUCCESSFUL COMPLETION OF THIS EXERCISE FULFILLS THE FOLLOWING NRC AND INPO REQUIREMENTS: 5B, 5D, 17, 18, 19, 8, 10, 16, 20, 21, 23, 24

SIMULATOR EXERCISE PERFORMANCE/OBSERVATION RECORD

Course _____ Group _____ Date _____

Instructors _____

Gradings: S = Satisfactory U = Unsatisfactory

I. Exercise _____

A. Initial Conditions/Scenario - exercise guide _____

B. Shift Assignments

	R_x S/U		o Manipulations	
	Per.	Sup.	Per.	Sup.
1. SF _____				
2. SRO _____				
3. RO _____				
4. BOP _____				
5. STA _____				

II. Evaluation

	SF	SRO	RO	BOP	STA
A. General					
1. Supervisory ability--					
a. Effective supervision of others	___	___	___	___	___
b. Effective direction of other	___	___	___	___	___
2. Operator communications--passes along information accurately and promptly	___	___	___	___	___
3. Annunciator response--immediately responds--uses alarm procedure	___	___	___	___	___
4. Use of procedures--pulls procedure and utilizes	___	___	___	___	___
5. Systematic and logical approach to problems	___	___	___	___	___
6. a. Attentive to instrumentation and controls			___	___	
b. Compares redundant channels			___	___	
c. Compares meter to recorder			___	___	
7. Alertness--aware of plant status at all times	___	___	___	___	___
B. Shift Turnover					
1. Oral turnover	___	___	___	___	___
2. Hourly logs			___	___	
3. Review control board	___	___	___	___	___
4. Test annunciator lights			___	___	

C. Exercise Performance	SF	SRO	RO	BOP	ST
1. Power Escalation 50% to 100%					
a. Maintains T_{avg}/T_{ref}	___	___	___	___	___
b. Turbine Load Limits	___	___	___	___	___
c. Generator Loading (MVARs)	___	___	___	___	___
d. S/G Level Control	___	___	___	___	___
e. MSR Operation	___	___	___	___	___
f. Maintains CAOC	___	___	___	___	___
g. Anticipates Xenon Transients	___	___	___	___	___
h. Uses Curves	___	___	___	___	___
i. Secondary Calorimetric at 90%	___	___	___	___	___
2. Charging Flow Indicator Failure(low)					
a. Immediate Actions	___	___	___	___	___
(1) Identifies Charging Flow Low					
(2) Identifies Charging Pump Running					
(3) Verifies PZR Level Increasing					
(4) Takes Manual Control of FCV-122					
b. Subsequent Actions	___	___	___	___	___
(1) Stabilizes Plant					
(2) Maintains RZR Programmed Level					
(3) Investigates Cause					
3. Charging Pump "A" Trip					
a. Immediate Actions	___	___	___	___	___
(1) Acknowledge Annunciators					
(2) Starts "B" Pump					
b. Subsequent Actions	___	___	___	___	___
(1) Stabilizes Plant With PZR Level In Band					
(2) Refers to Tech Specs					
(3) Investigates Cause					
(4) Initiates Request to Place "C" Pump in Service					
4. Generator Breakers Open					
a. Identification	___	___	___	___	___
(1) Generator Output OCBs Open					
(2) Rapid Load Decrease to Unit Auxiliary Loads					
(3) Increased S/G Pressure					
(4) Inward Rod Motion					
b. Immediate Actions	___	___	___	___	___
(1) Verifies Automatic Actions					
(2) Observes Failure of Steam Dumps					
(3) Verifies S/G PORVs Open					
(4) Refers to AOP-15					
(5) Places Steam Dumps in Pressure Control					
c. Subsequent Actions	___	___	___	___	___
(1) Stablilizes Plant					
(2) Investigates Cause					

C. Exercise Performance (continued)	SF	SRD	RD	BOP	STA
(3) Transfers Aux Loads					
(4) Identifies ATWS					
5. ATWS					
a. Immediate Actions					
(1) Attempts To Manually Trip R_x	___	___	___	___	___
(2) Drives Rods In					
(3) Sends Personnel To					
(a) Trip MG Sets					
(b) Trip R_x Trip Breakers					
(c) Trip MG Set Supply Breakers					
(4) Emergency Borate					
(5) Refers to FPP-1, FPP-2, or FRP-S.1					
b. Subsequent Actions					
(1) Investigate Cause	___	___	___	___	___
(2) Initiates PEP (Alert)					
6. Reactor Trip					
a. Immediate Actions					
(1) Verifies R_x Trip	___	___	___	___	___
(2) Verifies Turbine Trip					
(3) Checks Power to AC Emergency Buses					
(4) Checks SI Actuated					
(5) Refers to FPP-1 or FPP-2					
b. Subsequent Actions					
(1) Verifies Plant Parameters Stablilizing at No-load Values	___	___	___	___	___
(a) T_{avg}					
(b) S/G Level					
(c) PZR Pressure and Level					
(2) Conducts "Dead-Bus" Transfer to S/U Transformers					
(3) Verifies Source Range Energized					
(4) Secures Unnecessary Equipment					
(5) Stabilizes Plant at No-load Conditions					
7. PZR PORV Failure					
a. Identification					
(1) PZR Pressure Decreasing	___	___	___	___	___
(2) Relief Line Temp Increase/Alarm					
(3) PORV Indicates Open					
(4) PRT Parameters Increasing					
(5) PZR Sprays Indicate Open					
b. Immediate Actions					
(1) Attemps To Close Block PORV	___	___	___	___	___
(2) Energizes Heaters					
(3) Refers to AOP-19					
(4) Observes SI Initiates					

C. Exercise Performance (continued)	SF	SRD	RD	BOP	STA
c. Subsequent Actions					
(1) Investigates Failure of Block Valve					
(2) Closes after I&C Repair					
8. Safety Injection					
a. Refers to FPP-1 or FPP-2	____	____	____	____	____
b. Performs Immediate Actions	____	____	____	____	____
c. Stops RCPs (1400 psig)	____	____	____	____	____
d. Verifies Plant Recovery	____	____	____	____	____
e. Identifies Cause	____	____	____	____	____
f. Terminates SI When Criteria Met	____	____	____	____	____
9. Natural Circulation					
a. Identification	____	____	____	____	____
(1) No RCPs Running					
(2) Heat Sink Available					
b. Subsequent Actions					
(1) Refer To EPP-5					
(2) S/G Press < 1110 psig					
(3) RCS 40°F					
(4) RCS Δ T < 60°F					
10. Added Malfunctions					
a. _____	____	____	____	____	____
b. _____	____	____	____	____	____
c. _____	____	____	____	____	____
d. _____	____	____	____	____	____

FILE NO. CLC-7-5-2

C. Exercise Performance (continued)	SF	SRO	RO	BOP	STA
5. S/G Tube Leak 150 gpm					
a. Identification	___	___	___	___	___
(1) Increased Charging Flow					
(2) Leak Rate OST Performed					
(3) RMS increase R-19					
(4) Performs Leak Isolation or Identifies Source					
(5) Checks all Instrumentation					
b. Immediate Actions	___	___	___	___	___
(1) Determines Appropriate S/G					
(2) Checks Tech Specs					
(3) Commences R_X S/D					
(4) Shifts Condenser Exhaust					
(5) Refers to AOP-16					
(6) Observes Blowdown Isolated					
6. ATWS					
a. Immediate Actions	___	___	___	___	___
(1) Attempts to Manually Trip R_X					
(2) Drives Rods In					
(3) Sends Personnel to Trip R_X Breakers					
(4) Emergency Borate					
(5) Refers to FRP-S.1					
b. Subsequent Actions	___	___	___	___	___
(1) Investigates Cause					
(2) Initiates PEP (Alert)					
7. Reactor Trip					
a. Immediate Actions	___	___	___	___	___
(1) Verifies R_X Trip					
(2) Verifies Turbine Trip					
(3) Checks Power to AC Emergency Buses					
(4) Checks SI actuated					
(5) Refers to FPP-1 or FPP-2					
b. Subsequent Actions	___	___	___	___	___
(1) Verifies Plant Parameters Stabilizing at No-load values					
(a) T_{avg}					
(b) S/G level					
(c) PZR Pressure and Level					
(2) Verifies Transfer to SU Transformers					
(3) Verifies Source Range Energized					
(4) Secures Unnecessary Equipment					
(5) Stabilizes Plant at No-load Conditions					

FILE NO. CLC-7-5-2

C. Exercise Performance (continued)	SF	SRO	RO	BOP	STA
c. Initiates PEP (unusual event)	____	____	____	____	____
8. Safety Injection/S/G PORV Failed Open					
a. Completes Immediate Actions of FPP-1 or FPP-2	____	____	____	____	____
(1) Identifies RHR Pump A Tripped					
(2) Restarts RHR Pump A					
b. Identifies SGTR as Cause	____	____	____	____	____
c. Identifies Ruptured S/G	____	____	____	____	____
d. Isolates Ruptured S/G	____	____	____	____	____
e. Identifies S/G PORV Failed Open	____	____	____	____	____
f. Begins RCS Depressurization and Cooldown	____	____	____	____	____
g. Maintains Ruptured S/G Level Between 10% and 50%	____	____	____	____	____
h. Implements FPP-17	____	____	____	____	____
(1) Resets SI/Phase A					
(2) Cooldowns to 200°F at < 100°F/hour					
(3) Depressurizes to Minimize RCS Subcooling at 40°F					
(4) Maintains PZR Level					
(5) Terminates SI					
(6) Restores LP and Charging					
(7) Isolates Accumulator					
9. Intermediate Range Undercompensated					
a. Identifies Undercompensation	____	____	____	____	____
b. Manually Energizes Sources Ranges	____	____	____	____	____
10. Added Malfunctions					
a. _____	____	____	____	____	____
b. _____	____	____	____	____	____
c. _____	____	____	____	____	____

D. Simulator Exercise Comments:

E. Exercise Critique:

SRO - S/U
RO - S/U
Eval. - S/U
SF - S/U
STA - S/U
BOP - S/U
Overall Group

F. Student Comments/Simulator Improvement:

Instructor's Signature

EXERCISE: Inadvertent SI/SW Malfunctions
LOCA W/O CSIPs

LESSON CODE: SS7421H

OBJECTIVES: Upon completion of this exercise, the student will be able to:

1. Perform the immediate actions required of operators following a R_x trip and SI.
2. Use the EOP network inclusive of the Flow Paths, End Path Procedures and Foldouts to direct operator actions.
3. Complete the appropriate attachments of OMM-004 following an activation of the ESFAS.
4. Identify a need to and make notifications required by the PEP.
5. Identify a stuck control rod and make required adjustments in shutdown margin.
6. Use AOP-001 to correct for a stuck control rod.
7. Use available MCB indications plus requested information to identify a leak from the CCW to ESW system.
8. Use OWPs to place the protective cabinets in the correct alignment as required by Tech Specs following an instrument failure.
9. Detect and take corrective action for a failure of the steam dumps to control temperature.
10. Use EPP-001 to mitigate the consequences of a loss of both CSIPs in conjunction with a small break LOCA.

INITIAL CONDITIONS: IC 43 ( )	Present		Previous
Present conditions for: >100 Hrs	100%	PWR	
	588°F	T_{avg}	same
	527ppm	Boron	
	"D" at 192 steps	Rod Hgt.	

SHIFT TURNOVER INFORMATION: Presently on line within one day of exceeding CP&Ls Nuclear on-line record. No surveillances scheduled. No testing allowed. Anticipate no changes CSIP under clearance for bearing replacement. "C" CSIP will be available in six hours, two hours into action statement.

INSTRUCTOR GUIDE: Reset to IC 43, reboot RMS, ERFIS and conduct shift turnover. With lamp test complete override the Vacuum pump trip alarms to off and the operating vacuum pump red light to "on". Fail the operating vacuum pump. When requested, report the motor operating but a drastic drop in noise level (coupling sheared). With stability restored insert the inadvertent SI. After restoration have the SF complete an OMM-004. With this report ongoing insert the CCW-ESW leak. With trouble shooting ongoing and temperature restored to 557 fail P-12. Allow both conditions to run their course and be corrected. With all systems restored to normal fail the operating CSIP. Give time for immediate action and fail the seal stack on any RCP (insert ≈ 100 gpm leak to provide the leakage of the seal failure). If EPP-001 not addressed the instructor should prod in that direction before the situation degrades too far.

MALFUNCTIONS	OVERRIDES	REMOTE OPS.
T-0 CRF3A untripable for P-8		
T-0 CRF3A untripable for K-14		
T-15 CND4A(B) to active	T-0 CND 94 (99) to low	T-0 CSIP racking
T-30 SIS 1 to activate	T-0 CND 104 to low	status
T-75 CCW 3 to 30 gpm	T-0 CNE 28 (29) D to "hi"	
T-90 MSS9 to fail		
T-120 CVC 5 for operating unit		
TVAR RCS14A(B)(C) to 60 gpm		
TVAR RCS15A(B)(C)		
TVAR RCS16A(B)(C)		

SUPPLEMENTAL INFORMATION:

1. Inadvertent SI to ensure completion of OMM-004 prior to Exam.
2. Vacuum Pump coupling break occurred at HBR.
3. Loss of both CSIPs to use EPP-001 for this condition.

EXPECTED RESPONSE: AS PER SERIAL RELATED CHECKOFF

SUCCESSFUL COMPLETION OF THIS EXERCISE FULFILLS THE FOLLOWING NRC AND INPO REQUIREMENTS: 5C, 11, 17, 19, 24

SIMULATOR EXERCISE PERFORMANCE/OBSERVATION RECORD

Course _____ Group _____ Date _____

Instructors _____

Gradings: S = Satisfactory U = Unsatisfactory

I. Exercise _____

A. Initial Conditions/Scenario - exercise guide _____

B. Shift Assignments

		Rx S/U		o Manipulati	
		Per.	Sup.	Per.	Su
1.	SF _____				
2.	SRO _____				
3.	RO _____				
4.	BOP _____				
5.	STA _____				

II. Evaluation	SF	SRO	RO	BOP	ST
A. General					
1. Supervisory ability--					
a. Effective supervision of others	___	___			
b. Effective direction of others	___	___	___	___	
2. Operator communications--passes along information accurately and promptly	___	___	___	___	___
3. Annunciator response--immediately responds--uses alarm procedure	___	___	___	___	___
4. Use of procedures--pulls procedure and utilizes	___	___	___	___	___
5. Sytematic and logical approach to problems	___	___	___	___	___
6. a. Attentive to instrumentation and controls			___	___	
b. Compares redundant channels			___	___	
c. Compares meter to recorder			___	___	
7. Alertness--aware of plant status at all times	___	___	___	___	___
B. Shift Turnover					
1. Oral turnover	___	___	___	___	___
2. Hourly logs			___	___	
3. Review control board	___	___	___	___	___
4. Test annunciator lights			___	___	

C. Exercise Performance	SF	SRO	RO	BOP
1. Loss of Condenser Vacuum				
a. Notes change in efficiency, reports same and investigates			___	___
b. Notes change in condenser vacuum and performs immediate actions of AOP-012				___
c. Refers to AOP-012 for auto and immediate action verification		___		
d. Performs follow-up action of AOP-012		___	___	___
e. Request sufficient information of A.O. to diagnose problem	___	___		
f. Initiates corrective maintenance	___			
g. Makes notifications required	___			
2. Inadvertent SI				
a. Recognizes condition and takes appropriate immediate actions	___	___	___	___
b. Uses EOP path 1 for action verification		___		
c. Recognizes SI termination criteria		___	___	___
d. Address foldout A and B of EOP network		___		
e. Terminates SI IAW EPP-004		___	___	___
f. Initiates investigation	___			
g. Performs required administrative duties	___			
h. Address PEP and make notifications	___			
i. Performs required portions of OMM-004	___	___	___	___
3. Stuck Rods				
a. Recognizes mispositioned control rods		___	___	
b. Recognizes SI flow sufficient to meet emergency boration requirements		___	___	
c. Following SI realignment verifies sufficient SDM	___	___	___	
d. Address AOP-001 for corrective action following SI termination		___		
e Initiates corrective action	___	___		
4. Steam Dump Failure				
a. Notes SG-PORVs operating with condenser available		___	___	___
b. Investigates and finds steam dump malfunction				___
c. Investigates cause and corrects	___	___		
d. Initiates corrective action	___	___		
5. CCW Leak				
a. Interprets indications and recognizes a loss of CCW		___	___	
b. Perform immediate action of AOP-014		___	___	
c. Refers to AOP-014 for auto and immediate action verification		___		
d. Performs follow-up action of AOP-014		___	___	___

C. Exercise Performance (continued)	SF	SRO	RO	BOP
e. Trouble shoots and isolates leak to source	___	___		
f. Performs system realignment to isolate leak		___	___	
g. Address potential environmental concerns	___			
6. Loss of second CSIP				
a. Recognizes severity of failure	___	___	___	___
b. Immediately takes action to reduce RCS inventory loss	___	___	___	
c. Takes action to recover any CSIP	___			
d. Addresses EPP-001 as the only procedure that remotely covers the situation		___		
7. RCP seal failure (LOCA)				
a. Perform immediate action of AOP-016			___	
b. Addresses AOP-016 for verification		___		
c. Recognizes impact of excessive leakage W/O CSIPs	___	___	___	___
d. Initiates rapid cooldowns to allow depressurization to reduce leakage	___	___	___	___
e. Classifies event and makes notifications as required by the PEP	___			
f. Properly injects accumulators		___	___	
g. Request assistance from plant staff	___	___		
h. Places RHR in service when allowable	___	___	___	
8. Added Malfunctions				
a. _____	___	___	___	___
b. _____	___	___	___	___
c. _____	___	___	___	___

D. Simulator Exercise Comments:

E. Exercise Critique:

SRO - S/U

RO - S/U

SF-S/U

STA-S/U

Overall Group Eval.-S/U

BOP-S/U

F. Student Comments/Simulator Improvement:

Instructor's Signature

SHNPP SIMULATOR EXERCISE GUIDE

EXERCISE: S/G Tube Leak/Rupture/ATWS/ S/G PORV Failed Open FILE NO. CLC-7-5-2 TIME: 4 hrs

OBJECTIVES: Upon completion of this exercise, the student will be able to:

1. Identify a S/G tube leak, take corrective actions with the S/G PORV failed open to stabilize the plant, and minimize radioactive releases to the environment per EPP-17.
2. Take proper actions to put the reactor in a safe shutdown condition following an ATWS event.

RELATED LER's, UER's, POER's, etc: Ginna - January 25, 1982--S/G tube rupture; HBR - LER-80-009 tube leak; HBR - LER-81-026 tube leak; HBR - LER-81-022 tube leak.

INITIAL CONDITIONS	IC-11 (MOL)	Present		Previous
Present Power 3 1/2 hrs.		5%	PWR	75%
		5579°F	T_{avg}	578°F
		380 ppm	Boron	450 ppm
		103 on "D"	Rod Hgt.	194 on "D"

INSTRUCTOR GUIDE:
Update PRODAC. Conduct shift turnover. Increase power to ≈ 100%. At 20% power, fail CCW pump. Fail N-42 after 90% calorimetric, and insert S/G tube leak during subsequent pwr increase. Increase tube leak severity to cause SI actuation. An ATWS event will occur.

SHIFT TURNOVER INFORMATION:
Give plant conditions. Plant at 5% power following trip of "B" condensate pump (BKR malfunction). Repairs are completed. Synchronize to grid and increase power to 100%.

MALFUNCTIONS		OVERRIDES		REMOTE OPS.
T-0	All Auto R_x Trip Functions (Disabled)	T-0	PZR heaters Gr-A (off)	
T-0	Manual R_x Trips (Disabled)	T-0	"A" RHR pump (stop)	
T-0	IR Channel 35 (Undercompensated)	T-30	"A" CCW pump (stop)	
T-90	PR Channel 42 (Instr. Power Fuses Blown)			
T-130	Rather Than C-Loop, Leak in (A-Loop)			
T-130	Generator Tube Leak (24 GPM, Increase to 600 GPM)			
T-VAR	Power Oper. Rel. Valve (Failed Open).			

SUPPLEMENTAL INFORMATION:
"A" CCW pump - seized motor bearing
PZR heaters Gr-A breaker tripped at control cabinet - due to overcurrent (heater grounds)
ATWS - BKR failure
TR-412 ΔT pen - stuck pen
"A" RHR pump - electrical circuit breaker closing mechanism failure
N-42 - Instrument power fuses blown

EXPECTED RESPONSE: AS PER SERIAL RELATED CHECKOFF

SUCCESSFUL COMPLETION OF THIS EXERCISE FULFILLS THE FOLLOWING NRC AND INPO REQUIREMENTS: 2, 3, 5A, 7, 8, 14, 16, 19, 21, 23, 24, 25, 26, 31

SIMULATOR EXERCISE PERFORMANCE/OBSERVATION RECORD

Course _____ Group _____ Date _____

Instructors _____

Gradings: S = Satisfactory U = Unsatisfactory

I. Exercise _____

A. Initial Conditions/Scenario - exercise guide _____

B. Shift Assignments

	R_x S/U		ρ Manipulations	
	Per.	Sup.	Per.	Sup.
1. SF _____				
2. SRO _____				
3. RO _____				
4. BOP _____				
5. STA _____				

II. Evaluation	SF	SRO	RO	BOP	STA
A. General					
1. Supervisory ability--					
a. Effective supervision of others	___	___	___	___	___
b. Effective direction of other	___	___	___	___	___
2. Operator communications--passes along information accurately and promptly	___	___	___	___	___
3. Annunciator response--immediately responds--uses alarm procedure	___	___	___	___	___
4. Use of procedures--pulls procedure and utilizes	___	___	___	___	___
5. Systematic and logical approach to problems	___	___	___	___	___
6. a. Attentive to instrumentation and controls			___	___	
b. Compares redundant channels			___	___	
c. Compares meter to recorder			___	___	
7. Alertness--aware of plant status at all times	___	___	___	___	___
B. Shift Turnover					
1. Oral turnover	___	___	___	___	___
2. Hourly logs			___	___	
3. Review control board	___	___	___	___	___
4. Test annunciator lights			___	___	

FILE NO. CLC-7-5-2

C. Exercise Performance	SF	SRO	RO	BOP	STA
1. Reactor Critical with Reactor Power < 3%					
a. Verifies Initial Conditions	____	____	____	____	____
b. Maintains Primary and Secondary	____	____	____	____	____
(1) S/G Level					
(2) R_x Power < 3%					
(3) T_{ave}/T_{ref}					
c. Generator Start-up	____	____	____	____	____
(1) Voltage Control					
(2) Synchronizing					
2. Power Escalation					
a. Maintains T_{avg}/T_{ref}	____	____	____	____	____
b. Turbine Load Limits	____	____	____	____	____
c. Generator Loading (MVARs)	____	____	____	____	____
d. S/G Level Control	____	____	____	____	____
e. MSR Operation	____	____	____	____	____
f. Maintains CAOC	____	____	____	____	____
g. Anticipates Xenon Transients	____	____	____	____	____
h. Secondary Calorimetric at 90%	____	____	____	____	____
i. Uses Curves	____	____	____	____	____
j. Identifies ΔT pen failure	____	____	____	____	____
3. Component Cooling Water Pump Failure					
a. Identification	____	____	____	____	____
(1) Acknowledges Annuciators					
(2) Checks Flow Indicators					
b. Immediate Actions	____	____	____	____	____
(1) Starts Backup Pump					
(2) Verifies flow					
(3) Refers to AOP-14					
c. Subsequent Actions	____	____	____	____	____
(1) Investigates Cause					
(2) Checks Tech Specs					
(3) Informs I&C					
(4) Fills Out Work Request					
(5) Aligns C Pump as Backup					
4. Power Range NI Failure					
a. Immediate Actions	____	____	____	____	____
(1) Stabilizes Plant					
(2) Refers to Tech Specs					
b. Subsequent Actions	____	____	____	____	____
(1) Rod Stop Bypassed					
(2) Comparator Channels Defeated					
(3) Fuses Removed					
(4) OP-OT ΔT Bistables Tripped					
(5) Writes Clearance					
(6) Refers to AOP & OWP					

D. Simulator Exercise Comments:

E. Exercise Critique:

SRO - S/U
RO - S/U
Eval. - S/U
SF - S/U
STA - S/U
Overall Group
BOP - S/U

F. Student Comments/Simulator Improvement:

Instructor's Signature